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Does music make the ward go round?
The role of staff attitudes and burnout in the use of music for people with dementia

Emilia Papageorgiou

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University of Edinburgh
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Section 1. Abstract

Introduction: The evidence-base for the effectiveness of music on people with dementia is unclear, yet music is frequently used in the care of people with dementia. Little is known about formal dementia caregivers' views on the use of music in their ward. The aim of this study was to investigate the attitudes of formal dementia caregivers towards the use of music in people with dementia through the development of a new attitudes scale, and to investigate if these attitudes may be related to staff attitudes to people with dementia and burnout.

Method: 101 formal caregivers from NHS wards which accommodate people with dementia completed a survey consisting of the Staff Attitudes to Music questionnaire–Dementia version (SAM-D), translated and validated for the purposes of this study, the Approaches to Dementia Questionnaire and the Maslach Burnout Inventory. Data were analysed using exploratory factor analysis, reliability analysis and a series of correlational and multiple regression analyses.

Results: The SAM-D is a useful measure of formal caregiver attitudes to the use of music for their patients, with three subscales, 'Positive effects', 'Organisational facilitation' and 'Negative effects'. Most participants had positive attitudes to the use of music as a non-pharmacological intervention. Attitudes to dementia is a significant predictor of attitudes to the use of music, whereas burnout is not related to attitudes to music.

Discussion: Alongside the evidence-base for music, staff attitudes should also be investigated, although development of an attitudes scale can be challenging. There are furthermore clinical implications for the use of music in people with dementia and caregiver attitudes. Future research may help assess the SAM-D's psychometric properties further and investigate differences in attitudes of different professionals in various settings.

Section 2.

Introduction

2.1. Overview

Person-centred clinical practice within formal dementia caregivers involves the frequent use of music interventions, despite limited evidence that music has a positive effect on people with dementia. Previous research suggests that attitudes to the use of an intervention may be a better predictor of practice of this intervention, instead of its evidence-base. It is therefore possible that staff attitudes may explain the use of music as an intervention in people with dementia. In addition, when dementia staff suffer from burnout, the quality of communication between patient and caregiver suffers in parallel. Consequently, if music can facilitate communication between patient and caregiver by providing a different interpersonal platform, and simultaneously reduces ward noise, it is possible that burnout may indirectly predict staff attitudes to the use of music.

For these reasons, this study occupies the gap between the evidence-base and day-to-day clinical practice in dementia care settings. In particular, it concerns the use of music as a person-centred therapeutic intervention despite limited evidence that music has a positive effect of people with dementia. From this basis, this study focuses on the attitudes of formal dementia carers toward the use of music as a therapeutic intervention for their patients. This study also examines potential factors that might influence formal dementia caregiver attitudes towards music in hospitals.

This introduction consists of three major sections. For the purpose of placing the subject matter in context, the first section focuses on dementia and person-centred use of music. The second section focuses on the use of music for people with dementia and the evidence base of non-pharmacological therapies for behavioural and psychological symptoms of dementia, especially music. Factors that may affect

the use of music for people with dementia are reviewed in the third section. The following factors may be relevant; attitudes towards music in healthcare, attitudes to dementia and burnout. The chapter concludes with an outline of the main aims and hypotheses for this study.

2.2. Background

2.2.1. Dementia and Demographic Context

A combination of increasing survival rates at older ages and declining fertility rates has led to an ageing population. Currently, 1 in 9 people in the world is aged 60 years or over, and by 2050 this will increase to 1 in 5 people in the population (UNFPA & HelpAge International, 2012). With life expectancy at birth currently being over 80 in developed countries, the number of older people worldwide has increased to around 810 million (UNFPA & HelpAge International, 2012). Around 12 per cent of the European population is currently over 60 (UNFPA & HelpAge International, 2012), and this figure is expected to rise to almost 30 per cent by 2050. The number of older people in the world will overtake the number of children by 2045 (United Nations, 2006) and is projected to increase to one billion in less than ten years and to two billion by 2050 (World Population Ageing, 2009).

This change in demographics also means that there will be more people with dementia in the community and in continuing care settings. In 2010 the global prevalence of dementia was estimated at 4.7 per cent in people over 60 (World Alzheimer Report 2010), with the total number of people with dementia worldwide estimated to be around 36 million (Alzheimer's Disease International, 2010). Around eight million new cases of dementia emerge every year worldwide, which suggests

that someone is diagnosed with dementia every four seconds (WHO, 2012). The incidence of dementia is estimated to double with every 5.9 years increase in age (WHO, 2012). The number of people with dementia is projected to double every twenty years, reaching 115.4 million by 2050 (Alzheimer's Disease International, 2010).

Dementia is one of the greatest medical mysteries of our age (Binstock, 1994). It has been called a 'quiet revolution' (Clare *et al*., 2003), an 'unsolved' problem (Spiro, 2010), and, more recently, a 'silent plague' (Lees, 2012). The 'medical model' of dementia considers it to be a progressive neurodegenerative disease that can take many forms, with Alzheimer's being the most common, accounting for 60 to 80 per cent of dementia cases (Mayeux & Stern, 2012; Nowrangi *et al.*, 2011; Reitz *et al.*, 2011).

Dementia is a major public health concern (Department of Health, 2009) on the scale of cancer, stroke and heart disease (Alzheimer's Research Trust, 2010). There are currently 821,000 people diagnosed with dementia in the UK (Alzheimer's Research Trust, 2012) and there are 670,000 family and friends acting as primary carers (Alzheimer's Society, 2012b). In Scotland, there are currently 84,000 people diagnosed with dementia (Alzheimer Scotland, 2012). By 2021, it is predicted that there will be more than one million people diagnosed with dementia in the UK, and it is estimated that this number will have reached 1.7 million by 2051 (Alzheimer's Society, 2012b).

Dementia presents economic challenges for governments, healthcare providers and families (Banerjee, 2012). In 2010 the annual cost of dementia in the UK was estimated at £23 billion, more than that of cancer (£12 billion), heart disease (£8 billion) and stroke (£5 billion). It is expected that the yearly cost of dementia in the

UK will increase by 85 per cent by 2030 (Banerjee, 2012), 40 per cent of which will be accounted for by social care provisions (WHO, 2012). However, the UK's public spending on dementia research was a tenth of that for cancer in 2010 (Alzheimer's Research Trust, 2010). Currently only 4 per cent of the UK research funding is being devoted to dementia, compared to 71 per cent devoted to cancer research and 6 per cent for stroke (Luengo-Fernandez *et al.*, 2012).

This rise in the population of dementia cases and the parallel economic implications implies a need to enhance the provision of care for people with dementia, and also to ensure that standards of care are sufficient to respond to the needs of this population. Those especially in need of innovative approaches to care are those individuals with dementia at an advanced stage in the progression of the disease, such as residents within care homes, psychiatric assessment wards and continuing care wards in psychiatric hospitals, due to their limited abilities to communicate their needs (Hendryx-Bedalov, 2000). Within these settings people with dementia rarely have the same quality of life as they did before they moved into these settings, with 54 per cent of carers and relatives reporting that their relative's/friend's symptoms worsened as a result of their time in hospital (Alzheimer's Society Dementia Report, 2012a).

During the progression of dementia, although memory and other functions start to decline, the person remains responsive to stimuli in the environment while concurrently exerting less control of the environment (Aguero-Torres *et al.*, 1998; Hall & Buckwalter, 1987). The contingencies that may exist between the individual and their environment may become more significant during the last stages of the disease, where healthcare staff become an integral part of the patient's care. Moreover, formal caregivers are frequently called to respond to behavioural and psychological symptoms of dementia such as agitation, aggression, wandering, and

resisting care (Boller *et al.*, 2002; Souder *et al.*, 2004). In addition to tending to complex physical care needs, formal dementia caregivers spend 40 per cent of their time managing behavioural and psychological symptoms in people with dementia (Cassidy & Sheikh, 2002). In comparison to age-matched patients without dementia, the complexity of caring for a person with dementia increases together with their dependency on healthcare staff and their growing demands (Ory *et al.*, 1999). For these reasons, formal caregiving for people with dementia can be demanding (Hansebo & Kihlgren, 2002) and stressful (Bertrand *et al.*, 2006; McIntosh *et al.*, 1999). As an individual with an advanced dementia may have difficulty in communicating needs, there may be an enhanced risk of receiving substandard care in continuing care wards and psychiatric dementia wards (Ballard *et al.*, 2001; Hancock *et al.*, 2006).

A concern remains about the lack of medical advances in dementia care and the effectiveness of pharmacotherapy (Banerjee, 2009; Olazaran *et al.*, 2010). Furthermore, there is still no consensus on the causes of the development of this disease, what the best way of diagnosing dementia is, or what the best treatments are for this population. Consequently, research into dementia has more recently taken into account other aspects of the disease, such as mental and sensory stimulation, social psychology, personality, social environment, physical and mental health and life events (Kitwood, 1997; Spector & Orrell, 2010).

2.2.2. National Initiatives on Dementia

Scottish and UK-wide national strategy documents such as that proposed by the Department of Health (DoH, 2009) *Living Well with Dementia: A National Dementia Strategy*, or, in Scotland, the *Charter of Rights for People with Dementia and their Carers*

in Scotland (Alzheimer Scotland, 2009), and *Scotland's National Dementia Strategy* (Scottish Government, 2010), the Scottish Government's *Standards of Care for Dementia in Scotland* (Scottish Government, 2011a) and the *Promoting Excellence: A framework for all health and social services staff working with people with dementia, their families and carers* (Scottish Government, 2011b), all set standards for increasing the quality of care and enhancing the care provision for this population. According to these standards, patients with dementia have rights to receive high quality dementia care services, to be treated with dignity and respect, and to choose services that best fit with their lives. Specifically in Scotland, dementia is a national priority and all NHS areas in Scotland are required to meet targets in the management of dementia (commonly known as HEAT [Health, Efficiency, Access and Treatment] targets, Scottish Government, 2007).

According to the National Institute of Clinical Excellence (CG42; NICE, 2011), person-centred care should underpin good practice in dementia care. Furthermore, an important part of the recommendations of the Scottish Intercollegiate Guidelines Network (CG86; SIGN, 2006) is the introduction of individualised recreational activities for people with dementia in order to enhance their quality of life and well-being. This recommendation is congruent with a previous DoH report named *National Minimum Standards for Care Homes for Older People*, which advocated for more 'opportunities for stimulation through leisure and recreational activities' (DoH, 2003, p.15), especially for people with dementia. These activities should be tailored to the individual's abilities, so as to maximise these abilities and ought to be based upon the interests of the person. Moreover, the documents *Leading Better Care* and *Releasing Time to Care* (NHS Scotland, 2011) aim to improve processes and clinical practices in settings such as dementia care facilities, in order to increase the staff's time in providing person-centred care.

It is clear from the above evidence that all recent strategic documents published in relation to dementia care endorse the principles of person-centred care and the importance of meaningful activities, until the end of the life of someone with dementia. For this reason, the next section will discuss the concept of person-centred care and how it might be implemented across dementia services.

2.2.3. Person-Centred Care

2.2.3.1. Theoretical Background

Tom Kitwood from the Bradford Dementia Research Group (Kitwood, 1989) first underlined the absence of a theory in dementia care. In their attempts to set out the foundations for such a theory, they described dementia as a dialectic interaction between neurological impairment and personal psychology (Kitwood & Bredin, 1992). Kitwood (1989) was one of the authors to acknowledge the contribution of psychosocial factors in the presentation of a person with dementia, in a time where dementia was viewed as predominantly a biomedical entity (Adams, 1996). His theory argued that psychosocial factors and events, such as bereavement, retirement, psychological and physical illness or other major stressful life events, can contribute to the development of dementia (Kitwood, 1993). His approach is congruent with evidence suggesting that depression is a major risk factor for developing dementia (Green *et al.*, 2003; Jorm, 2001; Saczynski *et al.*, 2010; Speck *et al.*, 1995).

Kitwood (1998) believed that, instead of treating the person as a patient with symptoms of dementia, they should be first treated as an individual, characterised by their unique qualities, preferences, abilities and needs. The main ethic behind his

approach is that all people are of unconditional value and deserve respect, regardless of their disability. For people with dementia, this means that they can live fulfilling lives after their diagnosis (Kitwood, 1995).

According to Kitwood (1990), formal caregiver contact with people with dementia in the 'old culture' of dementia is described by a term called 'malignant social psychology', comprising of negative reactions such as banishment, disempowerment, labelling, invalidation, infantilisation and objectification of the person with dementia. He highlighted how malignant social psychology is still a cultural issue that needs to be altered for the advantage of those needing care.

Kitwood (1998) underlined the interpersonal significance of caring for someone with dementia. When interdependence becomes an absolute necessity for someone with dementia, especially as the illness progresses, the importance of his/her relationship with staff becomes more vital in order to sustain that person's sense of personhood. Kitwood's theory describes how person-centred care can be applied by i) treating people with dementia as entities, ii) considering the world from the perspective of the person, and iii) creating a positive interpersonal environment in which the person is capable of well-being (Brooker, 2003).

Although Kitwood's theory is nowadays synonymous with 'good-quality' care (Brooker, 2004; Edvardsson *et al.,* 2008) there are a number of limitations related to his approach, theoretically, and practically. Firstly, his premise that major psychological events act as precipitants to the manifestation of dementia is contradicted by his limited evidence to support this association, as shown in his published psychobiographies (Adams, 1996). Secondly, there is limited evidence to suggest methodological robustness in his published studies by means of utilizing valid and reliable methods to develop theories, such as Grounded Theory (Glaser &

Strauss, 1967). Thirdly, Kitwood's theory is not necessarily new, as previous authors have discussed the importance of person-centered dementia care (Goodwin & Mangan, 1985).

Moreover, the application of Kitwood's approach through the Dementia Care Mapping (DCM) tool faces several challenges. The DCM is an observational tool that allows assessment, preservation and improvement in the quality of life and wellbeing of people with dementia (Brooker, 2005). Use of this tool involves one to two observers ('mappers') continuously observing behaviors and events in people with dementia usually over the course of a typical day, in public areas such as the dining area or the lounge. During observations, the mapper assigns codes to the behaviour and rates engagement, wellbeing, affect, and occupation on a 6-point scale. Subsequently, feedback to care staff is provided according to the analysis of the results, so that care can be maximised as to its' person-centeredness (Brooker, 2005). Nevertheless, use of the DCM tool can be costly and requires specialist training and resources which many healthcare providers cannot provide (Chenoweth *et al.*, 2009). The DCM furthermore requires more thorough investigation of its psychometric properties, namely reliability and validity (Brooker, 2005; Thornton *et al.*, 2004).

Reviewers of the implementation of person-centred care in the field of dementia research have noted that, due to the significance of Kitwood's theory concerning the care of people with dementia, the term 'person-centred care' has been so widely used over the last decade, that the term may nowadays be somewhat over-employed (Brooker, 2003). In addition, multiple interpretations of the term across nursing and other health professions (Cahill, 1996; Lutz & Bowers, 2000) risk the dilution of the main focus of person-centred care and, as such, also risk the misinterpretation and misuse of the term.

A person-centred attitude is difficult to sustain in busy healthcare settings. In a dementia ward, communication between formal caregivers and patients may become a low priority and attention may be more directed towards task-oriented care (Burgess & Page, 2003). Inadequate staff training and support (Normann *et al.*, 1999; Packer, 2000) and difficulties in implementation due to policy priorities (Brooker, 2004), may also inhibit the application of person-centred care. The opportunity to use person-centred approaches with staff can also be significantly reduced due to lack of staffing and time (Fessey, 2007).

2.2.3.2. Person-centred Use of Music

Although the implementation of person-centred dementia care faces several obstacles, some of the most important opportunities provided for person-centred care in dementia settings are in stimulating daytime activities. This is of utmost importance especially in the knowledge that the need for more stimulating daytime activities is unmet for 76 per cent of people with dementia in residential settings (Hancock *et al.*, 2006). Wards accommodating people with dementia often host and celebrate such activities, mainly by working closely with external contributors, such as charitable organisations.

The past decade has seen an increase amongst voluntary and institutional groups in the organisation and facilitation of music activities for people with dementia (Bannan & Montgomery-Smith, 2008; Music for Life, 2010; Music in Hospitals, 2012; Sing for Your Life, 2010; Singing Group for People with Dementia and their Carers, 2012). Music interventions are frequently used in hospitals, due to 'their evidence base, ease of application and low cost' (O'Connor *et al.*, 2009a, p.238). Music approaches, such as background music, singing, music therapy and music concerts

may be used in conjunction with a person-centred approach towards the day-to-day care of people with dementia, by aiding communication and interaction between the formal caregiver and the patient.

Kitwood (1997, pp.90-92) describes 12 ways of positive interaction, which can facilitate person-centred care. In relevance to this study, the use of music as part of a person-centred approach to dementia care can be facilitated in all 12 of the domains Kitwood discussed with regards to the application of person-centred care, as detailed in Table 2.1.

Table 2.1.
An illustration of the application of Kitwood's (1997) model in music interventions.

Therapeutic Technique	Person-Centred Dementia Care	Person-centred Application to Music Interventions
Recognition	acknowledging the person by name or through eye contact, in order to affirm their uniqueness;	aiding verbal communication/eye contact with the musician;
Negotiation	consulting with the person about their preferences and needs;	encouraging the person with dementia to choose music and make requests based on their own musical preferences;
Collaboration	working together with the person to achieve shared aims and to include their initiatives and abilities;	the caregiver can work together with the person with dementia to maximise engagement in music;
Celebration	providing a joyful and convivial atmosphere for the person;	celebrating when the person with dementia finds music enjoyable;
Play	spontaneity and self-expression are actively encouraged;	encouraging the person with dementia to express themselves by signing along or dancing;
Stimulation	providing pleasurable and reassuring interactions without any sense of demandingness;	providing a non-threatening reassuring environment without posing demands on individual participation in music making;
Relaxation	providing close personal comfort in which the pace of interaction is slowed down;	providing close personal comfort between the caregiver and the person or between the performer and the person e.g. holding hands;
Validation	acknowledging the subjective experience of activities or mental state of the person through empathic understanding;	acknowledging the effects music may have on the person with dementia and responding to these effects;
Holding	providing a safe psychological space to facilitate the expression of negative feelings non-judgmentally;	helping to provide a safe space for self-revelation and reminiscing throughout and after the concert;
Facilitation	enabling the person to use their remaining abilities while helping them do what they would otherwise have been unable to do;	enabling the person with dementia to use their remaining abilities, e.g. being able to sing along;
Creation	accepting the engagement that the person may spontaneously try to achieve through their interactions;	helping the person with dementia take a lead in the interaction with the musician;
Giving	encouraging circumstances whereby the person may express their concerns, warmth to someone or offer their help;	helping the person with dementia contribute to music in any way they wish, e.g. dancing, singing along.

The natural continuity, orientation and non-verbal communication music can provide may help better understand or even address unmet needs for intimacy and communication and reduce agitation according to formal caregivers (Ragneskog & Kihlgren, 1997). Formal dementia caregivers with more 'hopeful' attitudes about people with dementia are more likely to engage in such social interactions and activities with residents (Lintern, 2001). This implies a need to further investigate the possible connection between attitudes to dementia and the use of social activities, such as music interventions. If formal dementia caregivers use music therapeutically in a person-centred approach, their attitudes to its use are also important to consider. Nevertheless, it is important to first critically evaluate the evidence-base on the use of non-pharmacological interventions and music in particular.

2.3. Music and Dementia

2.3.1. The Evidence-Base for Non-Pharmacological Approaches to Dementia

Psychological and health research are nowadays predominantly conducted within the context of evidence-based practice, the integration of the best available research in the literature with clinical expertise (APA, 2006) and patient values (Sackett *et al.*, 2000). Meta-analyses and systematic reviews of randomized controlled trials (RCTs) are currently the gold standard in health care research (O'Connor *et al.*, 2009; SIGN, 2011). As such, it is vital to explore the evidence-base for non-pharmacological interventions in dementia, and specifically the evidence-base for music in people with dementia.

Concerns have been raised about the efficacy and side effects of pharmacological interventions for behavioural and psychological symptoms of dementia (Lopez *et al.,* 1999; Schneider *et al.,* 2005; Smith & Beier, 2004; Wooltorton, 2002). There is an increasing recognition that pharmacological interventions for dementia should be used as a second-line approach and that non-pharmacological treatments should be implemented as first-line treatments (Banerjee, 2009; Livingston *et al.,* 2005; Olazaran *et al*., 2010; Seitz *et al.,* 2012).

A systematic review of 179 parallel-group randomised controlled trials (RCTs) on non-pharmacological treatments in people with Alzheimer's and their carers (Olazaran *et al.,* 2010) concluded that interventions such as caregiver education and training, Cognitive Stimulation Therapy, caregiver support and multicomponent interventions can be recommended.

Seitz *et al.* (2012) reviewed 40 randomised controlled trials investigating the efficacy and feasibility of non-pharmacological approaches on neuropsychiatric symptoms (MPI) in people with dementia residing in long-term care settings, including staff training, consultation, exercise, recreational activities and sensory stimulation. Overall, Seitz *et al*. (2012) considered that caregiver training, consultation and education can be effective and feasible ways to manage psychological and behavioural symptoms of dementia. However, Seitz *et al*.'s (2012) review did not identify any studies that are at the same time cost effective, easy to apply and are time and resource effective. A meta-analysis of the studies reviewed may have been useful.

In 2006, the Scottish Intercollegiate Guidelines Network (SIGN 86, 2006) reviewed the effects of numerous therapies on the cognitive and functional decline, agitation, depression and general behavioural disturbance in people with dementia. The

results of the SIGN authors' review suggested that Cognitive Stimulation Therapy and Reality Orientation have the best evidence-base for the treatment of cognitive and functional decline in people with dementia. Furthermore, they suggest that aromatherapy and recreational activities are effective in reducing levels of agitation in people with dementia. Behavioural strategies were recommended for the treatment of depression in people with dementia, whereas multisensory stimulation, recreational activities and caregiver interventions were considered the most effective interventions for addressing general behavioural disturbances in people with dementia. Nevertheless, most of the studies reviewed included small numbers of patients and as such were under-powered.

In their review of 89 studies (33 of which were RCTs), Bharani & Snowden (2005) compared the efficacy of four types of pharmacological interventions in dementia ('antipsychotics', 'anticonvulsives', 'antidepressants' and 'other') to three types of non-pharmacological interventions ('sensory', 'training' and 'activities'). They found that most non-pharmacological interventions used standardised measures, in comparison to the pharmacological ones. Nevertheless, studies of group activities, exercise and activity scheduling showed efficacy in three RCTs. Observational data suggested that animal therapy is efficacious. Nevertheless, Bharani & Snowden's (2005) review was too wide and was not focused on specific diagnoses or symptoms in dementia.

Cohen-Mansfield (2001) reviewed 83 non-pharmacological intervention studies such as sensory, social, training, behaviour therapy, structured activities and combination therapies. She concluded that individualised treatments which provide social contact and increase relaxation should be recommended for this population. Nevertheless, Cohen-Mansfield (2001) only included published studies in her review and as such her findings may be liable to publication bias, whereby there are

greater chances of having a study published if significant effects were found. Furthermore, Cohen-Mansfield (2001) did not calculate effect sizes or confidence intervals for each intervention and therefore one cannot compare studies between them or objectively measure their effects in comparison to pharmacotherapy.

Longsdon *et al*. (2007) reviewed 57 RCTs on psychological treatments (environmental and educational) for the behavioural and psychological symptoms of dementia and identified 14 as evidence-based treatments, two of which had the best evidence-base; the progressively lowered stress threshold treatment (PLST; Gerdner *et al.,* 2002) resulting to decline in behaviour frequency and caregiver distress, and PLST with problem-solving therapy (Huang *et al.,* 2003). However, Longsdon's review only included English published studies and as such not all available research was reviewed. Furthermore, it is unclear if these interventions were better than pharmacotherapy.

2.3.2. The Evidence–Base for the Use of Music in Hospitals

A systematic review examined 19 RCTs comparing the effects of recorded music on adult hospital patients with patients who received no music intervention (Evans, 2002). The author compared the two groups using outcomes such as pain, tolerance during procedures, mood, vital signs and length of stay in hospital. He found that music is primarily beneficial in reducing the anxiety of hospital patients who are not undergoing invasive procedures. Although it is recommended that authors of systematic reviews are transparent in their review protocol (Liberati *et al.,* 2009; Moher *et al.,* 2009), the detailed protocol used by the author is not reported. Furthermore the studies included small sample sizes and as such, statistical power of these studies is debatable.

A more recent systematic review (Nilsson, 2008) assessed the evidence of the effectiveness of recorded music on perioperative patients' pain and anxiety from 42 RCTs. Studies were excluded if a music therapist conducted the intervention and if music was used in conjunction with other interventions. Only nine studies were single-blind and only eight studies reported truly random allocation. Around 50 per cent of the studies showed that recorded music reduced perioperative anxiety, although only English articles were included in the review and some studies included measures with poor psychometric properties. In one of the most well-conducted studies, McCaffrey & Locsin (2006) studied the effects of music listening on the levels of pain of 124 over-65 year-olds undergoing elective hip or knee surgery using a control group where no music was played in the patient's room. Patients in the intervention group could choose from a selection of music and were instructed to use the CD player as often as they wished, except on two occasions where the music was played as directed by a nurse. The researchers found that the patients in the music condition had reduced pain medications taken postoperatively compared to the control group and that those patients reported significantly lower levels of pain and confusion. Nevertheless, the frequency of music listening in the intervention group was not monitored, and patients may have felt reassured about their pain by the presence of a nurse who switched the CD player on at regular intervals.

Barnason *et al.* (1995) studied the effects of i.music therapy, ii. music-video therapy, or iii. scheduled rest on the anxiety of 96 patients who underwent elective heart bypass surgery. They found no significant differences in anxiety for the three groups, although anxiety reduced for all three groups. Guzzetta (1989) also found that in 80 patients hospitalised over two days for myocardial infarction, those in a relaxation or a music listening group depicted more physical signs of relaxation than those in a control group. Hamel (2001) randomly assigned 101 patients who

were undergoing cardiac catheterisation to either a 20-minute preselected music listening group or a group who received treatment as usual. He reported that patients in the music group had lower blood pressure and heart rates than their controls, although selection bias may prevent the generalizability of these findings.

A systematic review of seven studies on the effectiveness of music interventions on the rehabilitation of adults who had a brain injury, including stroke, (Bradt *et al.*, 2010) found that rhythmic music encouraged walking. Another systematic review (Gold *et al.*, 2006) appraised three studies on the short-term effects of music therapy (conducted with daily sessions over one week) versus story reading, rhythmic speech and play activities in young people with learning disabilities. They found a medium effect of the music on the gestural communication of the participants and a small effect on their verbal communication. Nevertheless these three studies had very small sample sizes and therefore their findings need further replication.

In summary, there is some limited evidence to suggest that the use of music is beneficial during hospital admissions, although the means of music delivery and the length of effectiveness are unclear.

2.3.3. The Evidence–Base for the Use of Music for People with Dementia

> *I have seen deeply demented patients weep or shiver as they listen to music they have never heard before… Once one has seen such responses, one knows that there is still a self to be called upon, even if music, and only music, can do the calling. (Sacks, 2007, p.346)*

2.3.3.1. Effects on the person with dementia

Neuropsychological research suggests that melodies and musical notation may be spared in Semantic dementia (Weinstein *et al.,* 2011) and that semantic memory for melodies, as mediated by the right temporal lobe (Hsieh *et al.,* 2011), is perhaps still preserved in dementia (Cuddy *et al.,* 2012; Omar *et al.,* 2012; Vanstone *et al.,* 2012; Weinstein *et al.,* 2011). In addition, exposure to music therapy may enhance a person with dementia's cognitive status for the subsequent few hours (Bruer *et al.,* 2007). Furthermore, case studies are frequently reported of people with severe dementia whose musical skills have remained almost intact (Beatty *et al.,* 1994; Cowles *et al.,* 2003; Fornazzari *et al.,* 2006).

The first systematic review (Koger & Brotons, 2000) evaluating the effectiveness of music/music therapy on the reduction of psychological and behavioural symptoms of dementia could not identify any RCTs and as such could not report any empirical evidence to justify the use of music for this population.

A systematic review conducted by Livingston *et al.* (2005) included 24 music therapy studies, six of which were small RCTs reporting improvements in the disruptive behaviour of people with dementia. In two of these RCTs, an observer

was used to assess benefits, and in both studies the effects were short-lived (Clark *et al.*, 1998; Groene 1993). For the latter study (Groene, 1993), improvement of cognitive function was not an aim. Three RCTs assessed the behavioural change of participants after the music intervention. Observations of the effects of individualized music in the first two studies suggest that the patients were significantly less agitated during and after the intervention (Gerdner, 2000; Lord & Gardner, 1993). In one of them (Lord & Garner, 1993) 60 people with dementia were randomly assigned to either a 'Big Band' music group, a puzzles group and a drawing and painting group. The authors found that the music group showed more alertness and engagement in the group, both of which were assessed using an in-house produced measure. Nevertheless, the measure was not psychometrically validated and assessed different constructs in-between groups. The third study compared the effects of music, hand massage and a combination of both therapies on patient agitation (Remington, 2002). It was found that all three conditions significantly decreased agitation for up to an hour after the intervention. Although there is some evidence from the above that music may reduce agitation, the effects of music appear to be short-lived and may not exceed those reported for other non-pharmacological approaches.

Reviewing a series of small sample studies, the Scottish Intercollegiate Guidelines Network (SIGN 86, 2006) concluded that exposure to individualised music can relieve agitation but not aggression, although the mechanisms by which music can be effective are unclear and could be biased by the social interaction music can provide.

A systematic review (Robinson *et al.*, 2006) investigated ten interventions (multisensory environment, music therapy, exercise, special care, aromatherapy, behaviour therapy) as to their effects in reducing wandering in people with

dementia and found no robust evidence to support any intervention. Similarly, they found the evidence indicated by one music therapy study (Groene, 1993) of poor quality. Nevertheless, the authors of the systematic review did not include any qualitative studies as is common in such reviews.

In a more recent systematic review, Olazaran *et al.* (2010) included seven studies investigating the effects of music. One of the studies reviewed compared the effects of five music therapy sessions followed by two reading sessions or five sessions of reading and two music sessions on seating/proximity and wandering in 30 patients with dementia (Groene, 1993). It was found that wandering reduced for both groups during the course of both interventions. Nevertheless, other environmental distractors were not measured or accounted for, and as such may have influenced wandering behaviours. In addition, improvement of cognitive function was not an aim of the study.

In another RCT, seven people with dementia were assessed with regard to their cognitive status using the MMSE once a month for three months (Silber, 1999), with background music playing during the last two assessments. The author did not find significant changes in MMSE scores between assessments, although a deterioration in the participants' cognitive status may have affected the study's results.

Cohen-Mansfield (2001) reviewed 83 non-pharmacological intervention studies and identified 11 music studies (including recorded, live and music therapy studies), most of which claimed a reduction of agitation and aggression in the patients due to music.

Seitz *et al.*'s (2012) systematic review of 40 randomised controlled trials on non-pharmacological approaches on neuropsychiatric symptoms (MPI) in people with

dementia identified three music studies (Sung *et al.*, 2006; Svansdottir *et al.*, 2006; Raglio *et al.*, 2008). Based on these three studies, he concluded that music may have some short-lived effects on people with dementia.

A Cochrane review on music therapy for people with dementia (Vink *et al.*, 2011) found no significant support or discouragement of music therapy in people with dementia (Vink *et al*., 2011). The review analysed 10 RCTs, excluding musician-led RCTs or RCTs which lasted less than five sessions. The focus of the review was wide, in that it investigated the effects of both live and recorded music, and compared these interventions with other treatments. There was also variability in the studies in terms of measured outcomes, and as such it was difficult to compare results. Vink *et al.*'s (2011) conclusion was that most studies depicted poor reporting of their methodology. Nevertheless, the focus of the review was wider than recommended (Counsell, 1997) and as such made it difficult to reach conclusions about specific protocols of music delivery and patient outcomes. Furthermore, although most studies' methodological reporting was indeed poor, this does not necessarily imply that most studies' methodology lacked rigour. In addition, studies whereby the interventions were primarily musician-led may have yielded different results.

Guetin *et al.* (2009) conducted a single-centre, single-blind RCT to investigate the effects of a music therapist-led intervention on the levels of anxiety and depression of 15 participants with mild to moderate dementia, who were either allocated to a music or a reading group. The authors found that the levels of anxiety and depression significantly reduced in the music therapy group and remained low after an eight-week follow-up, compared to the reading group. Nevertheless the sample size of this study was small, and it is unclear whether treatment was concealed, how

randomisation was performed and whether six drop-outs had increased the possibility of a Type I error.

A study investigating the effects of a music therapist's nonverbal behaviour, affect and proximity on the engagement and affect of 38 people with dementia (Cevasco, 2010) found that the patients' engagement increased when the facilitator showed affect and proximity, compared to only affect, only proximity or neither affect and proximity. Nevertheless, the authors did not compare the engagement of the patients in music with their possible engagement in other similar activities.

The most recent RCT (Vink *et al.*, 2012) was conducted in 77 dementia residents of a Dutch nursing home who were either allocated to a music therapist-led intervention (43 residents), or to a group who engaged in occupational therapist-assisted general activities (34 residents), such as handwork, cooking or puzzle games. They found that the music therapist-led intervention did not significantly reduce agitation compared to the 'general activities' condition. Nevertheless, the 'general activities' group consisted of more cognitively impaired participants than the music group, and the activities consisted of various tasks whose protocol is unclear. Furthermore the authors used a modified version of the Cohen-Mansfield Agitation inventory (modified CMAI) as their primary outcome measure, although its psychometric properties have not been established. Moreover, the study failed to report sample size calculation and blinding procedures.

A systematic review (Chatterton *et al.*, 2010) compared the effects of 10 music-therapist led studies and seven formal caregiver-led music studies on people with dementia. The authors found no differences between the effectiveness of who provides the music intervention, although the authors only reviewed English studies despite research suggesting that non-English speaking healthcare settings

frequently host caregiver-led music sessions (Sung *et al.*, 2006; Sung *et al.*, 2010; Sung *et al.*, 2011).

A qualitative study (Gotell *et al.*, 2009) investigating the observed effects of no music, recorded music and formal caregiver singing during morning care duties on the verbal communication and mood of nine people with severe dementia found that caregiver singing improved patient-caregiver communication compared to the other conditions. It is therefore possible that active use of music (facilitated by a music therapist or professional musician playing music to the patients or a formal caregiver playing music or signing) maybe more effective than the passive delivery of music (e.g. radio playing, recorded music). These active music approaches are also generally considered by caregivers to be more preferable than passive music conditions, especially concerning 'suitability, respect of patients' dignity and independence, and practicality' (Lancioni *et al.*, 2012b, p.144).

Cooke *et al.*'s RCT (2010a, 2010b) investigated the effects that an eight-week, musician-led, group music intervention had on the levels of agitation, anxiety, quality of life and depression on 24 people with mild to moderate dementia. Using the participants as their own controls, they randomly allocated half of the participants to either a reading group or a music group, and after a five-week 'wash-out' period, they swapped conditions between participants. They found that neither the reading nor the music conditions significantly reduced agitation and anxiety although the authors noted increased verbalization in all participants regardless of group. They also found that quality of life improved for both groups and that depression scores (as measured by the Geriatric Depression Scale (GDS; Yesavage *et al.*, 1982) were reduced in the music group, compared to those who were in the reading groups. However, Cooke *et al.* (2010a, 2010b) conducted their research on only a small sample of people with mild to moderate dementia, and as

such it is unclear how these results can be generalised to people with more severe levels of cognitive impairment. Furthermore, the music condition had both live and recorded music elements, and as such it is unclear which type of music may have had a significant effect. Lastly, they provided no information on follow-up for either groups and the measure used to assess depression (GDS) is not recommended for use in people with dementia (Burke *et al.*, 1989).

Holmes *et al. (*2006) found that short-term levels of engagement in 32 people with moderate to severe dementia in three one-off conditions (live interactive music, recorded music and a 30-minute silence period) were higher in a live interactive music condition. Nevertheless, the study did not investigate the longer-term effects of the interventions. Using an experimental repeated measures design, Hicks-Moore *et al.* (2008) investigated the effectiveness of favourite music listening compared to hand massage in the reduction of agitation in 41 nursing home residents with mild to moderate dementia. Their findings suggested that both interventions significantly decreased agitated behaviours both individually and combined. Nevertheless, the measure they used to assess agitation was not assessed for its psychometric properties (modified CMAI).

Another study (Ho *et al.*, 2011) examined the effects of recorded mealtime music on the agitation levels of 22 nursing home people with dementia using a pre-test post-test design. They found a significant reduction in the agitation levels of the patients over a four-week period, although the lack of external validity by using a pre-test post-test design prevents generalisation of the results.

In an observational study, Sherratt *et al*. (2004b) examined the impact of four music listening conditions on the behaviour of 24 patients with dementia using continuous time sampling and the DCM tool. Participants were exposed to no music,

commercially recorded music, musician-recorded music or a live music condition. Extreme well-being was noticed more in the live music condition compared to the other conditions, but that was dependent on the patients' cognitive impairment (more cognitively impaired participants were more likely to move furniture around during the live music condition). Nevertheless, formal dementia caregiver interaction was not controlled for in the conditions and as such it may have enhanced the effects of the music. Furthermore, their study did not detect low frequency challenging behaviours and as such may be liable to a Type I error.

Gerdner (2000) compared the short-term effects of generic recorded 'relaxing' music listening to individualised recorded music on the agitation levels of 39 people with dementia over a six-week period using a repeated measures crossover design and found a significant reduction in agitation on the group of patients who listened to individualised music compared to those who were in the generic music condition. Nevertheless, rater bias may have confounded the results as the assessor was also the principal investigator in the study.

In Sung *et al.*'s research (2006), 36 people with dementia were assigned to either a music with movement intervention group twice a week for four weeks or a treatment-as-usual group, and their agitation was assessed on three occasions (before, during and after intervention). The authors found that the music group had significantly reduced agitation compared to the control group post-intervention. Nevertheless, the study had a small sample size and the raters were not blinded to conditions.

A case-control study in the effects of music therapy on 38 people with moderate or severe dementia showed that people in a 30-minute, 18-session (delivered twice weekly for six weeks) music therapy intervention showed significant reduction in

behavioural disturbances, aggressiveness and anxiety compared to the control group who received usual care (Svansdottir *et al.*, 2006). Nevertheless, the effects were not maintained four weeks post-intervention and the social interaction the intervention condition provided with the therapist may have inflated the positive results that were found. In Raglio *et al.*'s (2008) study, 59 people with dementia were randomly assigned to either a 30-session music therapy group over 16 weeks, or an educational and entertainment activities group to assess differences in their cognitive status or their psychiatric symptoms. Although the results showed that psychiatric symptoms decreased for those in the music condition both during and after the intervention, randomization was not standardized and communication was not assessed in the control group, which included various forms of intervention.

2.3.3.2. Effects on the caregivers

Music interventions may have a wider impact on the environment of the person with dementia. Music may directly impact on the behaviour of formal carers working in dementia care settings, such as increasing the amount of food they serve when music is played during mealtimes (Ragneskog *et al.*, 1996).

Music can also be considered as soothing and beneficial for healthcare professionals working in hospital settings (Choiniere, 2010), as it substitutes ward noise (such as beepers, alarms, intercoms, patient vocalisations and conversations), which is stressful. Topf & Dillon (1988) measured 100 critical care nurses' burnout and noise-induced psychological stress and discovered that nurses less sensitive to noise had similar chances of burnout as nurses sensitive to noise. Research also suggests that staff working in noisy work environments, such as a busy dementia ward, may become as a result of noise less engaging, caring and reflective (Grumet, 1993). Although this is especially relevant to formal dementia caregivers whose empathic

skills are important for communication with their patients, more research is needed to clarify to what extend occupational noise predicts burnout in formal dementia caregivers.

Choi *et al.* (2009) examined the effects of a thrice weekly, 50-minute live group music intervention for five weeks on the behavioural and psychological symptoms of 20 patients with dementia and their caregivers and compared it with a treatment-as-usual group. They discovered that patients and caregivers in the music condition group were less agitated after the intervention, compared to the control group. Although the small sample size and the interpersonal elements of the music intervention make this study's results limited, this research suggests that music may be beneficial for the caregiver.

Similarly, a recent qualitative study (Baker *et al.*, 2012) found that five informal caregiver/patient couples participating in thrice-weekly sessions of music signing and listening for six weeks did not report changes in their levels of depression, anxiety, and the quality and satisfaction of the relationship after the intervention. Nevertheless the interviews also suggested that the caregiver-directed music intervention provided a relaxing atmosphere for both the caregiver and the person with dementia. However music-sharing experiences can cover a spectrum of interactions and as such more research is needed to narrow the focus.

2.3.4. Is Absence of Evidence Evidence of Absence?

Although the methodological rigour of studies investigating the effects of music (recorded music, live music or music therapy) has improved in the last decades, it still provides concerns as to the robustness and generalisation of the findings from each study. There is clear variability in the methodology, sample and sample size,

intervention, reporting and results in these studies. Reviews of the treatment effects of music as an intervention for people with dementia may have used music therapists to deliver the interventions, whereas others used formal caregivers, such as nurses, or professional musicians. Other studies have studied the effects of recorded music.

Moreover, when investigating complex phenomena such as treatment effectiveness in psychosocial interventions for dementia, the construction of a high-level evidence-base faces several challenges, such as the lack of clarity in treatment aims (Douglas *et al.,* 2004), limited possibilities for randomization, the presence of confounding variables, the collaboration of the facilitators of the research protocol (Van Meijel *et al.,* 2004) and obtaining consent (Hall *et al.,* 2009).

In addition, there is enormous variance among the severity and types of dementias in every reviewed study. It is furthermore very difficult to gauge any reduction in difficult behaviours in trials that are protocol driven. Studies may fail to pick up treatment effects because they may have not been implemented when the severity of the patient's behaviour was at its most extreme. Measures may not have been sensitive enough to detect small effects or they were not validated to use with people with dementia. Another reason why the effects may not have been evident is possibly because the interventions or outcomes implemented are not focused, and that the therapeutic effects of music are too short-lived to be assessed. In summary, there are several well-justified reasons why the evidence base in the literature has been inconsistent.

2.3.5. Clinical Practice Implications

The evidence-base for music as a dementia treatment is incomplete and largely

insubstantial. Furthermore, other non-pharmacological treatments such as art therapy and cognitive therapy may be challenging to implement due to a lack of knowledge on behalf of the caregivers and limited time and resources (Bowers *et al.*, 2001; Burns *et al.*, 1993; Cohen-Mansfield & Jensen, 2008; Kolanowski *et al.*, 2010; Meeks *et al.*, 2000; Munyisia *et al.*, 2011; Reichman *et al.*, 1998; Thomson *et al.*, 2009).

Furthermore, effectiveness of a therapy does not guarantee implementation by a professional (Balas & Boren, 2000; Fixsen *et al.*, 2005). Research suggests that it may take up to 17 years for evidence-based research to be applied into practice, and even then only 86 per cent of the research is translated into clinical practice (Balas & Boren, 2000). More recent research suggests that only 15 per cent of routine clinical practice is based on evidence (Eddy, 2005).

In day-to-day clinical practice a patient's specific circumstances may prescribe treatment instead of clinical research (Tonelli, 1999). Routine clinical decision making frequently also incorporates individual preferences and clinical experience (Sackett *et al.*, 1996). Similarly, research suggests that formal caregivers who support one type of non-pharmacological approach over another, may be more likely to incorporate it in their day-to-day clinical practice (DeKeyser *et al.*, 2001). It is also suggested that the implementation of an intervention is predicated less by the evidence base of the intervention and more on the formal caregiver attitudes to the intervention proposed (Dalton *et al.*, 1998). More specifically, high intentions and expectations of an intervention from formal caregivers have been found to predict more use of a specific intervention (Dalton *et al.*, 1998).

The use of music as a non-pharmacological approach in dementia is common in the daily clinical practice of formal caregivers (Ceccato *et al.*, 2012) even though the evidence-base is problematic. It is thus possible that formal dementia caregivers'

views towards the use of music may be an important factor in the implementation of music as an intervention for people with dementia.

2.3.6. Summary

Despite the limited evidence-base of the therapeutic effects of music on people with dementia, formal dementia caregivers often use live and recorded music activities which are not music therapist-led. Research suggests that formal dementia caregiver characteristics, such as attitudes towards a specific intervention, may be a predictor of its implementation. If we want to examine how formal dementia caregivers implement evidence-based information in their routine clinical practice, their attitudes are therefore important to investigate. For this reason, the next section presents a summary of the research looking at formal caregiver attitudes towards music as an intervention.

2.4. Formal Dementia Caregiver Characteristics

2.4.1. Attitudes to Music

2.4.1.1. Attitudes to the Use of Music in Healthcare

Recent research indicates that patients, caregivers and providers have positive attitudes to background music compared to ordinary hospital noise in outpatient and inpatient areas (Perez-Cruz *et al.,* 2012). In a survey of psychiatric hospitals which accommodate music therapy, Choi (1997) found that formal caregivers with higher exposure to music therapy, such as nurses and rehabilitation therapists,

valued music as a more important approach to the care of their patients, compared to formal caregivers with less exposure to music therapy, such as psychiatrists and psychologists. Chu and Wallis (2007) examined 170 Taiwanese nurses' attitudes on complementary and alternative medicine and reported that 88 per cent of nurses considered music therapies to be useful for patients in mainstream healthcare, with almost half of them using such therapies routinely in their clinical practice. Nevertheless they used a convenience sample and therefore nurses with more positive attitudes may have been keener to participate in the research.

Furthermore, research investigating the attitudes of 141 formal caregivers working in a neo-natal intensive care unit towards music (Kemper *et al.,* 2004), found that 99 per cent of them supported the idea that music can improve mood, 96 per cent believed that music can lift spirits and boost energy and vitality, 79 per cent believed that music can enhance growth and promote recovery from illness, and finally that 78 per cent advocated that music can relieve pain. Nevertheless, the researchers did not use a validated measure to assess staff attitudes.

2.4.1.2. Attitudes to the Use of Music in People with Dementia

Research on formal dementia caregiver attitudes towards the use of music in people with dementia is limited to two studies. The first study was conducted in nursing homes investigating 110 physicians' attitudes towards non-pharmacological treatments for people with dementia. Using a web-based survey, Cohen-Mansfield & Jensen (2008) found that most physicians in their study (94 per cent) thought that non-pharmacological treatments should be deployed more often than currently used. Ninety-one per cent of physicians also believed non-pharmacological treatments for people with dementia should be used prior to any pharmacological

ones for the treatment of behavioural and psychological symptoms in dementia. Around 56 per cent of participants considered that there were insufficient resources for the use of non-pharmacological approaches in their work setting. This study's findings also point to female physicians being more in favour of non-pharmacological approaches than male physicians. Furthermore, 38 per cent of the respondents considered themselves familiar with music therapy and able to train others to use this intervention. However, this study's low response rate (three per cent) indicates that those responding to the survey may have been more likely to have a special interest in, and possibly a more favourable attitude towards the current topic. Consequently, generalizability of this study's findings may be limited (Polit & Beck, 2008). More importantly, is it difficult to draw conclusions about formal dementia caregiver attitudes to the use of music in more general terms, as the authors investigated music therapy instead of attitudes to the generic use of music in a ward. This is in contrast to usual clinical practice, whereby music, recorded or musician-led live music instead of music therapy is frequent.

The second study investigated 214 Taiwanese nurses' opinions towards using music therapy as an intervention for people with dementia, with a two-part survey (Sung *et al.*, 2011). The first part of their questionnaire included a modified version of a 23-item survey instrument assessing formal dementia caregiver attitudes to music originally produced for neonatal nursing staff (Kemper *et al.*, 2004). The second part of their survey included additional questions on their experiences of using music therapy and factors which may influence its use. Content validity of the survey was measured by three nursing faculties in aged care and two researchers on music therapy. They then piloted the survey to five staff working in residential care settings including qualified nursing staff, and to nursing assistants. Most respondents (around 90 per cent) were female nursing staff, the majority of which (58.8 per cent) were nursing assistants. The results of the survey suggested that

most nursing staff (74.8 per cent) had positive attitudes towards the use of music for people with dementia, especially when the music intervention is implemented by professionals with explicit knowledge and skills in music, such as music therapists and musicians. Nevertheless the majority of the participants (around 70 per cent) indicated that they did not use music therapy for their patients with dementia.

Sung *et al.* (2011) additionally found that some of the reasons affecting those formal dementia caregivers' use of music therapy were lack of knowledge and skills in music therapy, and lack of time and resources. They found no statistically significant differences in the views between qualified nursing staff and nursing assistants. Although response bias may be minimal in this study due to the high response rate, the sample was considered that of convenience, and as such it is unclear how this study's results could be generalizable outside Taiwan, where nurses may not apply music therapy, and music interventions are not restricted to structured music therapy sessions. In addition, the measure used by Sung e*t al.* (2011) (including the original measure by Kemper *et al.* (2004)) was not assessed as to its psychometric properties. Furthermore, the authors did not investigate factors that may affect formal caregiver attitudes, such as other dementia staff characteristics. A larger survey using a more validated measure in other geographic areas may be therefore needed to assess formal dementia caregiver attitudes towards the use of music in overall terms, and what factors may be related to them.

In summary, two studies suggest that formal carers working in dementia care settings may have positive attitudes to the use of music as a therapeutic approach (Cohen-Mansfield & Jensen, 2008; Sung *et al.*, 2011), although little is known about the overall views of formal dementia caregivers towards the use of music, due to the presence of other types of music interventions in a dementia ward. In the search for factors that may influence formal dementia caregivers to participate in music

interventions, the literature suggests that caregiver factors, such as attitudes and burnout, may play a significant part in understanding this phenomenon. As such, attitudes to people with dementia, and accumulating stress identified by the presence of burnout in formal dementia caregivers are next examined, in order to assess whether they may be factors related to attitudes towards music.

2.4.2. Attitudes towards Dementia

Social psychologists have, since the late 1940s, conceptualised attitudes as a threefold response to a person, object or event constituting emotional, cognitive and behavioural facets (Breckler, 1984). Furthermore, our attitude towards someone can influence our actions, beliefs, communication and relationship with that person. Butler (1969) first described the concept of ageism as a consistent prejudice towards older people. Prejudice against older people is one of the most commonly condoned and institutionalised types of prejudice in the world (Nelson, 2002).

When 20 older adults' handwriting (a process considered not under conscious control) was examined by independent raters (Levy, 2000), it was found that the handwriting of those who were beforehand subliminally exposed to negative ageing stereotypes was considered as deteriorating, 'senile' and 'shaky'. The handwriting of those who were beforehand subliminally exposed to positive ageing stereotypes was rated as younger, confident, 'accomplished' and 'wise'. Survey data collected from 42 university undergraduates by Fiske *et al.* (1999) showed that older people were considered as warm but incompetent, compared to other social groups. A meta-analysis of 232 studies (Kite *et al.*, 2005) also indicated a medium effect size of lack of attractiveness in older people, in comparison to younger people.

People's attitudes to dementia are important to consider, since people living with dementia can be sensitive to reactions towards their diagnosis. When 12 men and women with early stage dementia were interviewed to elicit their opinions about others' reactions to their disclosure of the dementia diagnosis, they described mainly negative experiences of disclosure and were concerned about being viewed as 'demented' (Langdon *et al.,* 2007). When Aminzadeh *et al.* (2007) interviewed 30 patient/carer dyads on the emotional impact of disclosing their diagnosis of dementia, they identified emerging themes such as stigma, loss and insecurity. Moreover, negative formal caregivers' attitudes toward dementia can be an obstruction to the provision of better care for dementia residents (Bagshaw & Adams, 1986; Jheeta, 2001; Lintern, 2001; Naus, 1973; Weinberger & Millham, 1975).

Previous research indicated that formal carers generally held negative attitudes towards older people. In 160 semi-structured interviews of children and spouses of people with dementia, Askham (1995) found that infantilisation, the perception that their relative 'going senile', and different interpretations of what dementia is were common amongst them. Interviews of 16 qualified and non-qualified nursing home staff (Kahana & Coe, 1969) on their views of their patients revealed negative attitudes towards the residents. A survey of 253 Australian dementia formal caregivers suggests that the majority of them viewed their patients with dementia as anxious, unpredictable, frightened, and having minimal control over their behaviour (Brodaty *et al.,* 2003). Nevertheless the translated version of the attitudes measure they used was not validated. Furthermore, the study's response rate is unclear, and as such it makes it difficult to exclude sampling bias.

Ciliberto *et al*. (1981) asked 186 nursing staff from a general hospital to respond to two vignettes with regard to diagnosis, prognosis and intervention decision. The first vignette was that of a young adult, and the second one was that of an older

adult with similar psychiatric symptoms as his younger counterpart. The authors found that dementia was guessed in 97 per cent of the participants for the older adult vignette, and that almost half of the participants recommended admittance to a nursing home. Participants were also most likely to consider recovery for the younger, but not for the older adult vignette. Revenson (1989) and Martin & Buckwalter (1984) additionally indicated the strong presence of unfavourable attitudes in formal caregivers working with older people with physical illness, dementia, or both. In-depth interviews with formal dementia caregivers (Ekman *et al*., 1991) have revealed that they are more likely to respond and interact with older people without dementia, compared to residents with dementia with severe communication difficulties.

Nevertheless, due to increased education and training in dementia care in the last decade, aiming to increase formal caregiver awareness and attitudes towards people with dementia (Doyle, 2009), it is possible that this research is out-dated and may not represent current formal caregiver attitudes to people with dementia.

More recently, when 181 nurses who were trained in dementia care were asked on their attitudes towards people with dementia using a semantic differential technique (Norbergh *et al.*, 2006), it was found that on a positive to negative attitude continuum, the participants' attitudes towards people with dementia were positioned towards neutral to positive. Interviews from 154 formal dementia caregivers on their attitudes to people with dementia, their work stress and satisfaction (Zimmerman, 2005) revealed that attitudes and satisfaction were positively skewed, and that stress was negatively skewed. They also found a small positive correlation between person-centred care and job satisfaction and a small negative correlation between job satisfaction and stress.

Pulsford *et al.* (2011) investigated 36 formal dementia caregiver views on management of behavioural and psychological symptoms in their patients and found that staff responded to their patients in a person-centred approach and attributed patients' aggressive behaviour to the environment or their interactions with others. Nevertheless, the sample size of their study was small and social desirability bias may have inclined participants to answer more positively.

Kang *et al*. (2011) sought out to investigate 100 Korean formal dementia caregiver attitudes towards people with dementia with a special interest in the effect of socio-demographics and nurses' work characteristics on attitudes. They discovered that Korean formal dementia caregivers generally held moderately positive attitudes towards older people with dementia, and that these attitudes may be affected by the work environment and their work routine. Because filial piety is more closely linked to Asian than Western cultures (Hu & Chen, 2007; Lee *et al.,* 2000; Sung, 1995), it is possible that this factor may have contributed to the inflation of positive attitudes towards older people with dementia.

Fritsch *et al.* (2009) compared a creative expression programme in the form of group storytelling with treatment as usual in 20 nursing homes. They found that the nursing home residents participating in the intervention condition were more engaged and alert compared to those in the control nursing homes. They also noted caregiver-resident interactions, social interactions, social engagement and attitudes to dementia were higher in the intervention nursing homes. Furthermore, research has shown that the more positive attitudes formal dementia caregivers have, the more they engage in activities where there is an increase in social interactions with people with dementia (Hatton, 1977; Lintern, 2001). Consequently, it may be possible that formal dementia caregivers have positive views of their residents when they facilitate the patients' participation in programmes encouraging creative

expression, such as music.

Caregiver burnout constitutes another important factor in the consideration of formal caregiver attitudes to dementia. The link between formal dementia caregiver attitudes to dementia and burnout is bi-directional. The assessment of the underlying needs of a person with dementia requires emotional labour – the effort to induce the 'right' feeling – (Hochchild, 1983), an abundance of which can increase job stress (Pugliesi, 1999). High burnout rates amongst formal caregivers working in geriatric services can result to more cynical, negative attitudes towards working with the elderly (Maslach, 1982; Pines *et al*., 1981) by reducing empathy (Astrom *et al.,* 1990). In turn, the more negative the attitude that formal dementia caregivers have towards working with dementia patients, the more likely they are to experience burnout and thus disengage from the residents' care and decrease their social interactions with them (Hatton, 1977). Consequently, formal caregiver attitudes and burnout are two important factors that need to be investigated alongside each other, as they both impact on the level of interaction with people with dementia.

2.4.3. Burnout in Formal Dementia Caregivers

2.4.3.1. Definition

There are many definitions of burnout in the literature. It may be easier to identify the components of burnout than to try and define it (Starrin *et al.,* 1990). As burnout is a dynamic process instead of steady state, its measurement is multidimensional. According to Maslach & Jackson (1981), burnout is a 'syndrome of emotional exhaustion, depersonalization and reduced personal accomplishment that can occur

among individuals who do "people work" of some kind' (p.1). It is a gradual process that, if addressed early, can lead to the reversal of its symptoms. Stress arousal may be noticed first, after which the person's efforts to try and reduce stress (energy conservation) may be fruitless, with these efforts, ultimately, resulting to exhaustion (Girdin *et al.*, 1996).

Emotional exhaustion can be noticed when a person's emotional resources are so depleted, that he/she cannot connect with his/her patient in an emotional level. Depersonalisation is related to the negative attitudes that may be developed in someone with burnout towards their patients. It can take the form of callous or detached responses to the patient that may be perceived as dehumanising or as a form of emotional and behavioural withdrawal from the patient (Evers *et al.*, 2001). Lack of personal accomplishment refers to the perception of someone's self-efficacy in their work with their patients. In fact, it has been suggested that self-efficacy is one of the greatest predictors of burnout, and absence of a feeling of self-efficacy may cause people to behave purposelessly although they are aware of what they need to do (Bandura, 1986).

2.4.3.2. Burnout and Patient-Carer Interaction

Formal dementia carers who have not had adequate training on working with people with dementia may have difficulty managing their patient's behaviour when the patient's needs are unmet (Burgess & Page, 2003). In addition, the development and maintenance of relationships with the patients' families presents a challenge for formal dementia caregivers (Looman *et al.*, 2002; Vinton *et al.*, 1998). These factors place formal dementia carers, of all cultural backgrounds (Edberg *et al.*, 2008), at risk of burnout (Ballard *et al.*, 2000; Drebing *et al.*, 2002). As a result, formal dementia

caregivers may experience distress, and, consequently, physical and emotional exhaustion. Nursing professionals are at an especially higher risk of burnout compared to their colleagues working in dementia settings (Park, 2010), possibly due to increased levels of interaction with the person with dementia compared to their colleagues.

Burnout in formal dementia caregivers is important to understand as part of this study in three respects. First, difficulties in communicating with the person with dementia may indirectly induce burnout. A qualitative study investigating 31 Australian, Swedish and British dementia nurses' experience of constraints towards providing care (Edberg *et al.,* 2008), found that the difficulties in communicating with the person with dementia and in balancing their competing needs were the main occupational challenges for them. Due to a patient's difficulty in communicating needs, the formal dementia caregiver may have difficulty empathising with the patient's world (Astrom, 1990) but will still be called upon to show empathy and emotional commitment towards the patient (Scott *et al.,* 2010), especially when the patient is depicting aggression or other behavioural symptoms of dementia. During that time, the caregiver may experience a conflict between wanting to comfort, understand and help the person with dementia (Hallberg & Norberg, 1990). Furthermore, a common misconception by formal dementia caregivers is that abuse by people with dementia is normal and should therefore be accepted as part of the job (Gates *et al.,* 1999). This is confirmed by research suggesting that only a minority of dementia resident assaults is formally reported (Goodridge *et al*., 1996). In turn, the carer is more likely to anticipate patient aggression in the future, a feeling that has been connected to stress (Rondey, 2000), and can reduce patient-carer interactions in the future.

Coupled with the carer's difficulty in receiving feedback on his/her efforts to

respond to the patient's needs (Asplund *et al.*, 1991; Ekman *et al.*, 1991), the carer is at risk of perceiving the care they provide as meaningless (Kuremyr, 1994). This inequity in the exchange process may cause the caregiver to show less empathy for the patient in the longer-term, and to depict emotional and physical withdrawal from the patient (Melchior *et al.*, 1997; Scott *et al.*, 2011).

In relation to the current study, the effect of music on interpersonal reciprocity may provide a therapeutic relational platform between formal dementia caregivers and residents and possibly enhance the exchange process between patient and caregiver. Consequently, it is possible that formal dementia caregivers will find this communication platform at work helpful, not only for their patients, but also to reduce the difficulties in communicating with their patients, and possibly their burnout and carer burden.

Secondly, formal caregiver burnout is linked to the quality of care of people with dementia and resident aggression (Black & Almeida, 2004). A systematic review and meta-analysis of 30 studies investigating the relationship between the behavioural and psychological symptoms of dementia and carer burden found a moderately strong relationship between behavioural and psychological symptoms of dementia, and caregiver burden, psychological distress and depression (Black & Almeida, 2004). Nevertheless, the authors only used published studies in their review, and, due to publication bias, these results may inflate the actual relationships between variables. The heterogeneity of studies and measures used in each study may furthermore reduce validity in these findings.

A Finnish survey compared differences in work stressors between 590 formal caregivers working in specialised care units for people with dementia and 587 formal caregivers working in health-centre inpatient units (Pekkarinen *et al.*, 2006).

They found that issues of role-conflict and time pressures were similar in both settings, although they also found a relationship between increased work stressors in dementia caregivers and the patients' high functional needs. Nevertheless, this study did not make any causal conclusions regarding the latter finding and these findings may not be applicable to a UK setting due to cultural differences such as political issues (Kendell & Pearce, 1997) and health care system characteristics (Snibbe *et al.,* 1989), factors that affect job satisfaction (Cocco *et al.,* 2003). In consideration of the current study, how formal dementia caregivers view their role towards the facilitation of music interventions may be relevant to their attitudes to music and burnout. Similarly, time pressures may reduce caregiver chances to engage in person-centred care, and as such, reduce exposure to the use of music, which in turn may affect their attitudes towards its use.

Isaksson *et al.* (2008) asked 196 nursing home caregivers about their exposure to violence from residents and correlated their answers with their degree of burnout. The caregivers who had frequent exposure to violence from residents were more likely to suffer from burnout in comparison to formal dementia caregivers who had not been at all exposed to resident-related violence. An implication of this finding for this current study is that participation in a music activity may provide a way for formal dementia caregivers to interact with residents with minimal exposure to violence, and as such, carers may consider music helpful for caregiver burnout.

Thirdly, if research suggests that staff working in noisy work environments, such as a busy dementia ward, may become less engaging, caring and reflective due to noise (Grumet, 1993), an activity which may substitute ward noise with music may encourage formal dementia caregiver engagement, reflectiveness and empathy and possibly reduce burnout.

In conclusion, there is some evidence that the use of music may be related to formal dementia caregiver burnout in three respects. First, it might provide a therapeutic communication platform between formal dementia caregiver and resident, secondly it may reduce patient agitation and aggression and therefore caregiver burden, and third, it may replace busy ward noise which can be stressful for the formal caregivers.

2.4.4. Summary

Healthcare staff tend to have positive attitudes towards music approaches for their patients. There is some but limited evidence to suggest that formal dementia caregivers feel that music is useful for people with dementia. At the same time, those formal dementia caregivers are highly vulnerable to stress and burnout. More specifically, the more negative attitudes formal dementia caregivers have about their patients, the more susceptible they are to burnout and the less likely they are in facilitating meaningful activities for their patients. The explicit links between caregiver attitudes to facilitating meaningful activities for their patients, their attitudes to their patients and how burnout may affect their attitudes require further investigation.

2.5. The Relevance of this Study

An extensive review of the past and current literature has indicated that the evidence-base of music interventions is limited in terms of high-quality studies (Koger & Brotons, 2000; Vink *et al.*, 2011; Vink *et al.*, 2012). Formal dementia

caregiver attitudes to the use of music as an intervention might explain why the practice of music is frequent in units caring for people with dementia (Bannan & Montgomery-Smith, 2008). The investigation of formal dementia caregiver attitudes to the use of music remains a gap in the literature.

The possibility of application of person-centred care in music interventions (Table 2.1) suggests that the study of formal dementia caregiver attitudes towards people with dementia may be linked to their attitudes towards the use of music for their patients. Moreover, if formal dementia caregiver behaviour and resources are considered barriers to the use of non-pharmacological approaches (Cohen-Mansfield & Jensen, 2008), burnout in formal dementia caregivers may predict attitudes to the use of music, especially considering the link between burnout and lack of resources (Burgess & Page, 2003; Pekkarinen *et al.*, 2006). Moreover, if music is considered beneficial for the formal caregivers by reducing ward noise (Choiniere, 2010; Topf & Dillon, 1988) and by providing a different means of communicating with the patient by increasing reciprocity (Baker *et al.*, 2012), it is possible that there is a relationship between caregiver attitudes to the use of music and burnout.

Furthermore, there is no psychometrically valid and reliable measure to assess such attitudes. Although Sung *et al.*'s study (2011) provides insights into how formal caregivers in dementia wards view music interventions, more research is needed to clarify if these findings can be generalised to a UK setting, to validate the measure used in their study, and to assess what factors affect the way these formal caregivers may view music as an intervention.

2.6. Aims and Hypotheses of Present Study

The aims of this study are twofold:

- the primary aim of this study is the development and preliminary validation of a formal measure to assess formal dementia caregiver attitudes towards the use of music interventions in people with dementia and
- the secondary aim of this study is to assess what the relationship is, if any, between formal dementia caregiver burnout and their attitude towards working with people with dementia, and how these might be related to their attitude towards the use of music as an intervention.

The hypotheses to investigate the research aims above are as follows:

- **Hypothesis 1:** It is hypothesised that staff will report positive attitudes towards the use of music with people with dementia, as measured by scores in the SAM-D.
- **Hypothesis 2:** It is hypothesised that there will be a positive correlation between attitudes to dementia, as measured by the total scores in the Approaches to Dementia Questionnaire (ADQ), and attitudes to music, as measured by the total scores in the SAM-D.
- **Hypothesis 3:** It is hypothesised that staff attitudes to dementia, as measured by the total scores in the ADQ, and burnout, as measured by the subscales of the Maslach Burnout Inventory (MBI), Emotional Exhaustion (MBI EE), Depersonalisation (MBI DP) and Personal Accomplishment (MBI PA), will predict attitudes to the use of music for people with dementia, as measured by the total scores in the SAM-D.

Section 3.

Method

3.1. Design

This study implemented a cross-sectional survey design investigating staff attitudes concerning the use of music for people with dementia and the factors which may predict their attitudes. Variables examined were attitudes to music, attitudes to people with dementia and burnout. The measurement of these variables was obtained via the distribution of three questionnaires to each staff member.

3.2. Participants

Participants were nursing and other AHP (Allied Health Profession) staff (qualified, pre-qualified and non–qualified), recruited from 19 wards providing dementia care in NHS Scotland, as follows:

- four continuing care wards for people with dementia;
- two mixed (functional and organic) dementia wards;
- seven male and female specialised dementia wards;
- one frail elderly ward;
- two mental health assessment wards for older people; and
- three psychiatry of old age day hospitals.

Participants who had never worked with people with dementia or had less than a year's experience of working with people with dementia were excluded from this study.

3.3. Ethics

The thesis ethics proposal form for this project was submitted to the Doctorate in Clinical Psychology Programme's Ethics Tutor, and an outline of the proposed study together with the proposed measures was sent to the Scientific Officer of the local Ethics Committee and the local Quality Improvement teams. The Scientific Officer from the NHS Ethics Committee gave an opinion that NHS ethical approval was not required (Appendix II) as it was viewed as an opinion survey. Subsequently, a submission was made to the Clinical Psychology Programme's Research Ethics tutor who informed that a level one audit ethics approval was sufficient. The local Quality Improvement teams also reviewed and approved the proposed project (Appendix III).

The ethical issues considered in this project were primarily; confidentiality, consent, and the possibility of inducing psychological distress during completion of the questionnaires. Steps taken to minimise and reduce such risks included the voluntary participation of each participant, and the withdrawal from the research of any participant who wished to do so at any stage of the project. On all occasions staff were reassured that no personal information was to be passed on to NHS management or other organisations, and that specific wards or participant information would not be identified but instead collectively presented in the final report. Staff were also informed that upon completion of the study a summary of the study's results will be disseminated to all the wards that participated in the research.

A minimum amount of psychological distress was deemed to be possible during the completion of the questionnaires, and potential participants were advised for such an eventuality when given the questionnaires. It was also assumed that, due to job

insecurity, staff may have been reluctant to disclose their levels of burnout and negative attitudes towards their patients. For this reason, the Maslach Burnout Inventory (MBI) was presented as a 'survey on job-related attitudes' as per the recommendations of the authors of the scale (Maslach & Jackson, 1981a, p.7). In addition, a list of useful information (e.g. voluntary agencies) was provided at the end of the questionnaires concerning how to seek further advice on well-being. Participants' signed consent was separated from their questionnaires as soon as they were collected, to ensure anonymity of results. In turn, returned questionnaires and consent forms were separately securely stored in a locked NHS office.

3.4. Music in Hospitals: Communicating Through Live Music

Music in Hospitals (registered charity in England, Wales and Scotland, SC038864) is a non-profit organisation that works closely with hospitals to provide high quality music activities for people with dementia. The main aim of Music in Hospitals is to enable people from all ages to 'enjoy the therapeutic benefit of high quality live music' (Music in Hospitals Scotland, 2012). Between April 2011 and March 2012, Music in Hospitals Scotland organised 1620 concerts across 570 care units, 767 of which were in provided in elderly care units (Music in Hospitals Scotland, 2012).

Music in Hospitals provide a substantial amount of their input in facilities which accommodate people with dementia, such as care homes, hospices, continuing care wards, mental health assessment wards, day centres and dementia psychiatric wards.

Although music concerts for people with dementia vary in terms of content, a typical music concert is arranged by the Charge Nurse, Ward Manager, or Activities Coordinator in the ward. NHS funding is allocated annually for the arrangement of such activities. After the concert is organised, it is usually advertised to the residents a few days in advance. On the day of the concert, residents are invited to congregate in their main activity area shortly before the concert begins. A musician, music therapist or a group of musicians then initiate the concert by asking for requests once the patients have gathered around the musician. Concerts usually last between 45 minutes and an hour. Relatives are invited to join music performances if present but staff presence is considered as a prerequisite for hosting concerts in the ward/day hospital.

Staff attendance in such music activities is essential and a sound opportunity for staff to engage in person-centred care with the people with dementia. Facilitation of the experience of music relies heavily on the caregivers to encourage participation and to make the most out of the music (Lancioni, O'Reilly *et al.,* 2012; Lancioni, Singh *et al.,* 2012). Formal dementia caregivers who in the past have attended music concerts 'often report striking anecdotes attesting to the important place that music continues to hold in [people with severe dementia]' (Vanstone & Cuddy, 2010,p.108). A member from the Carers Group in a Scottish hospital reports that 'the songs invoked longer term memories for all but were particularly significant for those with dementia. Seeing carers watching and hearing their loved ones sing was a very emotional and uplifting experience' (Music In Hospitals Scotland, 2012, p.6).

Although staff participation is not only viewed as a prerequisite for concerts by Music In Hospitals Scotland, and also that such participation helps the person with dementia engage in such a meaningful activity, a recent audit from Music In Hospitals Scotland indicated that staff attendance in music concerts is very poor. In

fact, staff presence is sporadic and it is usually one member of staff who is present during concerts. The results of this audit therefore constituted the main driver for Music In Hospitals Scotland to further investigate formal dementia caregiver attitudes toward the use of music, by collaborating with the principal researcher.

3.5. Measures

3.5.1. The Staff Attitudes to Music-Dementia (SAM-D) Questionnaire

The need for an attitudinal scale to investigate formal caregiver attitudes concerning the use of music for people with dementia has not been satisfactorily addressed in past research and literature. However, several attitudinal scales have been used to assess hospital-based staff's attitudes to non-pharmacological therapies (Brolinson *et al.,* 2001; Boutin *et al.,* 2000; Brown *et al.,* 2007; Cohen-Mansfield & Jensen, 2008; Crocetti *et al.,* 1996; DeKeyser *et al.,* 2001; Halcon *et al.,* 2003; Wallis *et al.,* 2004).

More relevant to this research, Kemper and her colleagues (2004) produced a questionnaire to assess the attitudes of staff towards the use of music in neonatal wards. Almost exclusively, the attitudinal scales in these studies lack psychometric validity and reliability, factors that hinder the replication and further use of their measures. Furthermore, there is no validated measure in the English language in the current literature that can help investigate how staff feel about the use of music for people with dementia. Nevertheless, a Taiwanese measure was recently developed by Sung *et al.* (2011) to assess attitudes to music for staff who work with people with dementia.

Using a cross-sectional survey design, Sung *et al.* (2011) based their new questionnaire on Kemper *et al.*'s (2004) measure (Appendix IV) which assessed the attitudes of staff towards the use of music in neonatal wards. They then translated it to Taiwanese and drafted it into a two-section survey (Appendix V) to investigate dementia staff attitudes concerning the use of music. The first section of the survey consisted of a 23-item questionnaire exploring nursing staff attitudes towards the effects of music therapy on people with dementia, and their expectations about its use. Each item ranged from 'strongly disagree' to 'strongly agree' on a five-point Likert scale, with total scores ranging from 23 to 115. The second section of the survey consisted of seven questions that asked about the participants' experience and use of music therapy, and the factors affecting their use of this intervention. Content validity of the questionnaire was assessed through expert feedback from five researchers and nursing staff, as well as pilot work carried out on five additional dementia staff. Subsequent to the construction and validation of the scale, Sung and her colleagues administered this scale to 214 nursing home staff working in long-term care facilities. There is no further information from the authors with regard to reliability and validity checks of their scale.

Although Sung *et al.*'s (2011) measure was subjected to very limited validation, it remained the only measure in the dementia literature to assess staff attitudes to the use of music. It was thus deemed that their measure was more appropriate to employ in the current study for the purpose of answering the research questions, although it would have to be rigorously translated for an English speaking population.

Protocols and practices for obtaining an accurate and culturally valid second language translation of instruments (Berdie & Anderson, 1974; Del Greco *et al.*, 1987; Oppenheim, 1966; Spielberger & Sharma, 1976) have been used for the purposes of

ensuring an accurate translation of the Taiwanese version of the SAM-D. During the construction and translation of Sung *et al.*'s 23-item questionnaire the researcher followed the guidelines and recommendations primarily outlined by Berdie & Anderson (1974, p.31-48). In addition, specific guidelines concerning the construction of attitude scales were followed according to the recommendations of Oppenheim (Oppenheim, 1966, p.105-159).

The measure was developed using the following process. Firstly, a pool of items was created for the first section of the SAM-D, based on previous questionnaires assessing staff attitudes to music (Kemper *et al.*, 2004; Sung *et al.*, 2011), as well as questions derived by a question-writing panel. Secondly, the second section of Sung *et al.*'s instrument was translated, back-translated and submitted to expert review.

3.5.1.1. Step One: Creating a Pool of Items

The first part of the SAM-D was constructed from the following questions;

- key demographic questions (Questions 1-4);
- a series of questions used in Kemper *et al.*'s (2004) original questionnaire (Questions 5, 6 and 8);
- a question concerning the importance of music as asked by Sung *et al.* (2011) in her questionnaire (Question 7); and

- questions derived by a question-writing panel (Questions 9-11 and 24-29), which included the primary researcher, the researcher's clinical thesis supervisor, and four committee members of Music in Hospitals Scotland, including its Chief Executive. These questions included items relating to the frequency of music input in each ward, staff attendance of music events in their ward, the frequency of documenting the patient's participation in such an event, as well as questions relating to the staff's role in the use of music in their ward.

The literacy and reading levels of the participants and agreement between written and spoken forms of language were also born in mind during the translation of the SAM-D. Furthermore, characteristics of language such as idioms can be very difficult to translate. Nevertheless, equivalent language versions of a scale can facilitate multicentre research and to meaningfully compare results derived from different countries (Sartorius & Helmchen, 1981).

Schuman & Presser (1981) describe at length the problem of assessing 'no opinion' responses, which tend to be given by a group of participants they describe as 'floaters'. They define floaters as people who when forced with a choice between a yes or a no answer would choose one, whereas they tend to answer DK ('don't know') if such an option was presented to them. Schuman & Presser (1981) suggest the availability of middle responses compared to a yes/no format. Based on this recommendation, and also the use of a 5-point Likert scale by Sung *et al.* (2011), the original 5-point Likert scale was used to ascertain responses.

3.5.1.2. Step Two: Translation of Sung et al.'s (2011) Measure

The second section of the SAM-D included the translation of the original 23 items used by Sung *et al.* (2011). Several issues were to be addressed prior to the initiation of the translation of the measure. Some measures are translated into other languages without careful consideration 'to the adaptation that is necessary to ensure their usefulness in other culture or language' (Sartorius & Kuyken, 1994, p.3). Other instruments are produced 'in equivalent versions in different languages before assessing the instruments' validity and reliability that are a prerequisite of the use of instruments in a new culture' (Sartotius & Kuyken, 1994, p.3). Furthermore, differences may exist between cultures in their concepts of the role of a staff member in terms of working with people with dementia. For example, Taiwanese nurses consider music therapy as part of their routine clinical work. This practice is unstandardized in UK NHS hospitals, whereby music therapy is provided by music therapists. In addition, UK NHS settings frequently have other music interventions than music therapy, such as live music concerts.

Spielberger & Sharma (1976) suggest four stages in translating a measure - preliminary translation into the target language; evaluating the preliminary translation; determining the cross-language equivalence between the source and the translated measures; and ascertaining the reliability and the validity of the translated measure.

i. Translation

During the first step of the translation of Sung *et al.*'s (2011) scale, an experienced native Mandarin speaker was recruited to manually translate the questionnaire. Cross-language equivalence (examining the likelihood of using the same terms in

the same context for both languages [Maneesriwongul & Dixon, 2004]) is vital during a scale translation. Consequently, the researcher met with the translator to clarify the translated items and to discuss the semantic and cross-language equivalence of each item.

ii. Back-translation

The preliminary translation of the questionnaire was sent back to the original author of the measure in Taiwan. Dr Sung checked the translation and ensured that all items were semantically represented appropriately in the English language, by back-translating the scale (Brislin, 1980).

Measurement experts also recommend the routine use of reversed items when constructing a scale (Nunnally 1978; Paulhus 1991), as the inclusion of reverse items may act as 'cognitive speed bumps' (Podsakoff *et al.*, 2003) and reduce non-substantive responses and acquiescence. For this reason, several items from Sung *et al.*'s scale were reversed (specifically items 7, 12, 14, 16, 20 and 22, see Appendix VI) prior to the dissemination of the translated questionnaire to experts for review.

iii. Expert review

When the 23-item questionnaire was back-translated and the reversed items were incorporated into the revised version of the scale, it was distributed to 15 expert reviewers amongst which were geriatricians, psychiatrists, dementia care coordinators, staff grade doctors and staff nurses. Feedback from all reviewers suggested the rewording of an item (item number one).

The process of translation and its finalised version are presented in Appendices VI and VII, respectively).

iv. Reliability and validity

Reliability and validity of the SAM-D are discussed in Section 4.

3.5.2. The Maslach Burnout Inventory Human Services Survey (MBI-HSS) (Maslach & Jackson, 1981)

The Maslach Burnout Inventory Human Services Survey (from this point onwards to be referred to as MBI) is a well-validated 22-item measure of professional burnout. The questionnaire (Appendix VIII) asks participants to rate how often they experience feelings related to burnout at work on a scale ranging from 0 (never) to 6 (every day). It includes items related to burnout, such as 'I feel I treat some of my recipients as if they were impersonal objects'. The MBI has good test-retest reliability and acceptable internal consistency (Maslach & Jackson, 1981), as well as established construct validity (Demerouti *et al.,* 2003; Lee & Ashforth, 1996; Schaufeli & Enzmann, 1998; Schaufeli *et al.,* 2001; Schaufeli & Van Dierendonck, 1993). In turn, the MBI has three independent subscales of emotional exhaustion, depersonalisation and lack of personal accomplishment and has been widely used and validated in studies of health professionals (Leiter & Harvie, 1996). There is no combined total score on this measure. A high degree of burnout is reflected in high scores on the domains of Emotional Exhaustion (MBI EE) and Depersonalisation (MBI DP) and a low score on Personal Accomplishment (MBI PA). Table 3.1 details the cut-offs and degrees of burnout score for mental healthcare workers in all three subscales.

Table 3.1.
Classification of Scores on the Three Domains of the Maslach Burnout Inventory Humans Services Survey (MBI)

Degree of burnout	Emotional exhaustion	Depersonalisation	Personal accomplishment
Low	0-13	0-4	34+
Average	14-20	5-7	33-29
High	21+	8+	28-0

The MBI was selected for this study because it was the most well validated and most widely used burnout measure in healthcare professions working with people with dementia.

3.5.3. The Approaches to Dementia Questionnaire (ADQ) (Lintern, 2001)

The Approaches to Dementia Questionnaire (ADQ) (Lintern, 2001) is a 19-item scale (Appendix IX) which asks participants to rate their degree of agreement on a five-item Likert-type scale with response options ranging from 'strongly agree' to 'strongly disagree'. Questionnaire items involve attitudes towards people with dementia, such as 'People with dementia are unable to make decisions for themselves' or 'Spending time with people with dementia can be very enjoyable'. The questionnaire consists of two subscales; a subscale measuring optimism about dementia (ADQ H - Hope) and a subscale that measures the recognition of people with dementia as sentient beings (ADQ RP - Recognition of Personhood). The ADQ has high internal reliability (Cronbach's α=0.83) and test-retest reliability (α=0.76) and has been validated among healthcare staff working in dementia settings (Kada *et al.*, 2009; Macdonald & Woods, 2005; Zimmerman *et al.*, 2005).

The ADQ was selected for this study because it was the most well validated measure of care related attitudes to patients with dementia available at the time of

writing.

3.6. Pilot Study

Careful pilot work facilitates the corroboration of the main study's procedure by testing it out to the target population (Oppenheim, 1966). As such, the procedure of the study was piloted on a small group of the target population. The primary aims of piloting were to establish the length of completion for all three questionnaires, to clarify any concerns surfacing from the participant information sheet and the consent form, and to resolve any ambiguities in terminology and the presentation of the research to the participants.

3.6.1. First Pilot

Firstly, the researcher made contact with one of the charge nurses in an NHS dementia ward, and requested the participation of his staff in the present study. After permission was granted, the charge nurse and five staff attended a meeting where they were invited to participate in the research.

Subsequent to completion of the questionnaires, each of which took around 10 minutes to complete, the researcher and the participants discussed issues needing further clarification. Questions such the professional relationship between the researcher and Music in Hospitals needed to be addressed during the staff's introduction to the study. Answering these questions was necessary in order to clarify that there were no conflicts of interest between parties, that the completion of

the study would not affect Music in Hospitals input in the ward the research was taking place in, and that the study was not an evaluation of the work the charity provides.

Piloting also informed the guidelines of the presentation of the research to future participants, in order to address the multidimensionality of the effects of music, as well as the multifaceted presentation of symptoms of dementia. For example, the pilot participants sought clarification as to whether they were supposed to complete the questionnaire bearing one of their patients in mind, or bearing in mind different types of music. The pilot staff were also provided clarification on that their opinions instead of their knowledge of the effects of music were being sought. Feedback and clarifications were then incorporated into the researcher's protocol.

3.6.2. Second Pilot

Following the incorporation of the piloting staff's feedback into the study design, the study was further distributed to six members of staff from another dementia ward. Following the presentation of the research and voluntary completion of the questionnaires, the staff commented that all questions were legible and 'straightforward', and that the aims of the study were clear. As no further suggestions for change were advised, the questionnaires completed by that team were included in the main study.

3.7. Sample Size and Power Calculation

Pearson's chi-square (χ^2), Fisher's exact tests, independent samples t-tests, Pearson's product-moment correlations, exploratory factor analysis (EFA), and multiple regressions were employed to explore the hypotheses, after adjusting alpha levels for multiple comparisons.

Sample size adequacy in EFA has been subjected to many investigations (Arrindell & van der Ende, 1985; MacCallum *et al.,* 1999; Velicer & Fava, 1998), aiming to 'explain the most with the least' (Henson & Roberts, 2006, p.393). Although the rule-of-thumb for sample size estimation is a subject-to-item ratio of 10:1 or less (Costello & Osborne, 2005), researchers recommend a sample size of at least 100 when the number of variables is less than 20 (Arrindell & van der Ende, 1985; Gorsuch, 1983; Kline, 1999; MacCallum *et al.,* 1999). The Keyser-Meyer-Olkin measure of sampling adequacy was also consulted. The strength of communalities in each factor, the overestimation of factors and the strength of item loadings within factors were also considered as criteria for determining the goodness of fit of the factor structure.

The desired sample size for multiple regression was calculated using four independent variables, the total score from the Approaches to Dementia Questionnaire (ADQ total), and the three subscales of the Maslach Burnout Inventory; Emotional Exhaustion (MBI EE), Depersonalisation (MBI DP) and Personal Accomplishment (BMI PA). The dependent variable was the total score for the Staff Attitudes to Music - Dementia questionnaire (SAM-D).

Green's (1991) formula for calculating the minimum number of participants required for multiple regression suggests a sample size no smaller than $\boldsymbol{50 + 8\,k}$ (k equals the number of independent variables) for the testing of the full regression

model. Based on Green's formula, the study's required sample size would be 82.

However, effect sizes and statistical power should also be used in the calculation of sample adequacy (Miles & Shevlin, 2001). In order to determine the sample size for multiple regression, the effect sizes of similar studies were investigated to explore the strength of relationships between the independent and dependent variables (Astrom, 1991, Zimmerman *et al.,* 2005). The first study (Astrom, 1991) found a large effect size of the relationship between attitudes to dementia and burnout, although the second study (Zimmerman *et al.*, 2005) reported a weak correlation between attitudes to dementia and occupational stress.

Moreover, since no study has investigated the relationship between attitudes to music and attitudes to dementia and burnout, previous literature could not inform the expected effect size of this study. Nevertheless, Cohen (1992) suggests that the majority of effect sizes in psychological research are medium. He moreover suggests a statistical power level of 0.80. Based on these recommendations, Clark-Carter's (2004) table of sample size estimations suggests that with a four-variable regression model with desired statistical power level of .80 (Cohen, 1992), and a significance level of .05, 40 participants would be adequate to detect a large effect size, and around 90 participants would be adequate to detect a medium effect size.

It is therefore advocated that a sample size of 90 is sufficient in order to detect a medium effect size, should one exist. Nevertheless, in order to obtain adequate sample size for EFA, the researcher aimed to recruit at least 100 participants, with 113 participants having been recruited.

3.8. Procedure

The recruitment of participants was arranged via initial informal communication with all charge nurses / ward managers in the health board working with people with dementia, as well as their nurse managers, so as to determine the amount of staff who are employed in each ward, to provide initial information about the study and to assess interest in participation in the research accordingly. The possibility of attending a ward meeting / handover meeting to discuss the study with the staff was suggested.

Berdie and Anderson (1974) argue that handing out the questionnaires to people assembled together, making the aims of the study known to participants before the completion of questionnaires, providing cover letters and information sheets, and assuring confidentiality and anonymity can help increase the response rate. Consequently, two months before the researcher visited each ward, a poster was placed in the staff room to inform potential participants about the research, to pre-empt the researcher's upcoming visit, and to encourage interest, attendance and participation in the research (Appendix XI).

Meetings were arranged at convenient times and dates for staff (i.e. attendance in ward rounds and handover and multidisciplinary meetings). After the researcher's attendance at a ward meeting was arranged, the researcher spent five minutes explaining the study aims and the procedure for completion of the questionnaires, and gave the potential participants the opportunity to ask any questions concerning the study. The researcher's script is presented in Appendix XI.

Participants were informed that their returned questionnaires would be detached from their consent forms upon receipt and stored securely, and that their responses

would not be shared with any management or other organisations. They were also informed that, upon completion of the study, a summary of the study's results would be disseminated to all the wards that participated in the research. The researcher left behind packs comprising the participant information sheet, the consent form, the Staff Attitudes to Music - Dementia Questionnaire (SAM-D), the Approaches to Dementia Questionnaire (ADQ – Lintern, 2001), and the Maslach Burnout Inventory (MBI – Maslach & Jackson, 1981) for staff who wished to participate in the study. An internal envelope addressed to the researcher was provided in each questionnaire pack.

On return of each questionnaire, consent forms and questionnaires were marked with an identifier (i.e. a corresponding number) to ensure that the data was anonymised. Subsequently, the consent form for each participant was separated from the corresponding questionnaires and stored in separate locations.

3.9. Approach to Analysis

Data were analysed using the Statistical Package for the Social Sciences (SPSS Version 19). The accuracy of data entry was assessed by an examination of minimum and maximum values, and means and standard deviations for each measure. Prior to analysis missing data and reverse items in subscales were managed following the procedures outlined below.

3.9.1. Missing Data

Missing data from returned questionnaires were managed in line with the recommendations from publishers of a well-validated measure, the WHOQOL-BREF (World Health Organisation, 1995). As such, the World Health Organisation Quality of Life (WHOQOL) group (World Health Organisation, 1998) recommends a conservative approach to the treatment of missing values (Winer, 1971), whereby they are replaced with the appropriate mean scores for each subscale, if a subscale has up to 20 per cent missing data. Consequently, datasets for each participant who had one or more questionnaires with more than 20 per cent of missing data (more than two items missing in either subscale of the ADQ, or the subscales MBI PA and MBI EE, or more than four items missing in the SAM-D, or more than one item missing from the subscale MBI DP) were judged as invalid. Similarly, missing values relating to demographic information were substituted by the mean scores closest to the participant's subgroup. For example, a missing value in the variable 'age' was calculated by estimating the mean age of all other participants who shared the same gender, profession and years of experience.

3.9.2. Reversal of Negative Items

Negative items in the SAM-D scale (items 7, 12, 14, 16, 20 and 22) were reversed prior to data entry so that high SAM-D total scores represent more positive attitudes, and also to prepare the data for exploratory factor analysis. All SAM-D items can be found in Appendix VI with reverse items highlighted in red font.

3.10. Response Rate

Of the original 345 questionnaire packs given out, 113 (32.7 per cent) were returned. Of the returned 113 questionnaire packs, seven (6.2 per cent) were judged as invalid as they contained 20 per cent or more missing data. Returned questionnaires whose subscales contained less than 20 per cent of missing data (15 SAM-D questionnaires missing <20 per cent items; 6 ADQ questionnaires missing <20 per cent items; 9 MBI scales missing <20 per cent items) were used in the subsequent analysis following the replacement of each missing value.

Five (4.7 per cent) out of the remaining 106 questionnaire sets with minimal missing data were excluded from the analysis as their responders had less than a year's experience in working with people with dementia. This resulted to a response rate of 29.3 per cent, a representative sample of 101 participants consisting primarily of female nursing professionals. The flowchart of the recruitment process is presented in Figure 3.1.

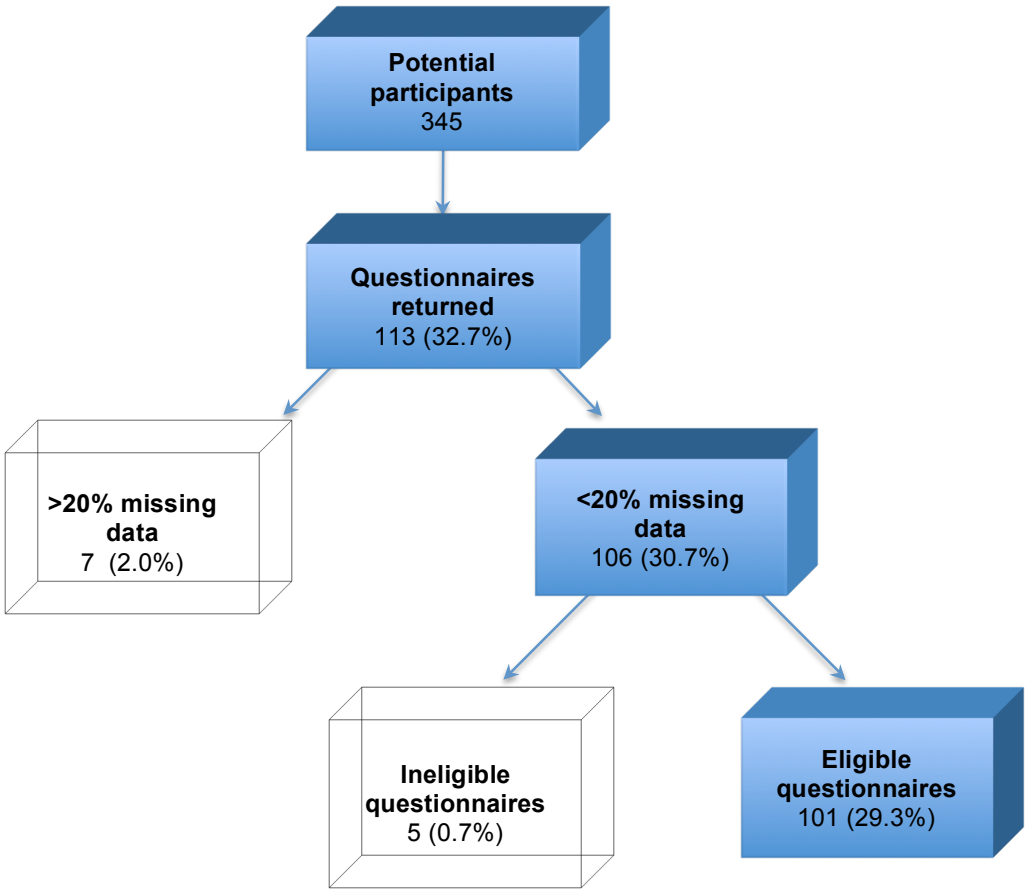


Figure 3.1 Flowchart of Recruitment Process

Section 4.

Results

4.1. Overview of analysis

Reliability analysis and exploratory factor analysis were conducted to assess the reliability of the SAM-D. All 101 participants were used to assess the reliability and validity of the SAM-D questionnaire.

Descriptive statistics were used to report the demographic data and relationships between demographics were assessed using independent samples t-tests, Pearson's chi-square (χ^2) or Fisher's exact tests (where expected cell frequencies were smaller than five) and effect size calculations where assumptions of independence of observations and of frequency of observations were met.

For hypothesis testing, data from only nursing professions were analysed in order to reduce the heterogeneity of the sample (Field, 2009, p.133). The SAM-D questionnaire submitted to reliability and exploratory factor analysis was used for both exploratory analysis and hypothesis testing, in order to make the total scores from the SAM-D more reflective on staff attitudes to music.

Parametric tests were used to assess the respective hypotheses following assessment of assumptions for variable measurement, homoscedasticity, normality of distribution and independence of errors. Where further investigation of the relationship between independent and dependent variables was merited, multiple regression analyses were used. Significance levels were set at α=0.05 during hypothesis testing, and for multiple comparisons were adjusted accordingly to reduce the risk of Type I error.

4.2. Preliminary Validation of SAM-D

The following section presents the psychometric properties of the Staff Attitudes to Music-Dementia Questionnaire (SAM-D). All participants' (N=101) SAM-D scores were used for the preliminary assessment of reliability and validity of the SAM-D. Responses to each item in the SAM-D could range from one to five (strongly disagree to strongly agree), with items reversed as needed (items 7,12,14,16,20,22; Appendix VI) so that higher scores on the total scale would reflect more positive attitudes. Total scores were then calculated by summing the score for each item.

4.2.1. Factor analysis and reliability analysis

Before exploratory analysis was performed in the items of the questionnaire to investigate the existence of factors within the SAM-D, two tests were employed to assess the suitability of the data for factor analysis. Firstly, the Kaiser-Meyer-Olkin test was employed, which measures if the sample size is adequate for factor analysis. Large values for the KMO measure (>.50, Tabachnick & Fidell, 2007) indicate that a factor analysis of the variables would be appropriate. The value of .79 in the KMO test indicated the sampling adequacy for a principal component analysis (PCA). Secondly, the SAM-D item correlations were sufficiently large for PCA according to Bartlett's test, χ^2 (66, N =101)= 455.79, p< .001. Furthermore, multicollinearity was assessed by looking at the determinant of the correlation matrix of the items. The determinant value of 6.35E-006 (0.000635) was greater than the necessary value of 0.00001 (Field, 2007, p.648). Thus multicollinearity was not found in the data.

The assumption of a normal distribution for each item in the scale is vital in order for the results of the analysis to be generalised beyond the sample collected for the purposes of this study. A frequency analysis was therefore carried out for each scale item. Means, SD, the percentage distribution across the five item response categories (Strongly agree to Strongly disagree), and skewness and kurtosis values are presented in Appendix XVII.

Nine items (items 1, 4, 7, 8, 9, 11, 13, 17 and 22, highlighted in red font) had poor distribution characteristics because their skewness or kurtosis exceeded the recommended value of 1.96 (Field, 2009, p.139). In light of Ray's (1985) suggestion against the elimination of skewed items, these nine items were not removed from the scale, so as to increase the proportion of highly meaningful items in the scale and to reduce acquiescence in the scale's scores. Alternatively, Ray suggests that item elimination should be determined on each scale item's correlation to the scale's total scores. Furthermore, exploratory and confirmatory factor analyses are relatively robust against normality assumptions (Gorsuch, 1983).

The inter-item correlation matrix for each item in the SAM-D is presented in Appendix XVIII. The average of all item correlations in the SAM-D was .20, range -.26 - .74, indicating the absence of multicollinearity (no correlations $r >$. 8) (Field, 2009, p. 648).

Nevertheless, items 16, 21 and 22 were eliminated because the magnitude of their correlations was quite low. Furthermore, item 21 was the only item not significantly correlating with the SAM-D total scores and this provided further evidence for this item's removal.

There are two types of factor rotation, orthogonal and oblique. Oblique rotations are recommended when a correlation between the factors is predicted (Field, 2009, p.643), a premise common in social sciences (Breakwell *et al.,* 2000; Costello & Osborne, 2005). Tabachnick and Fiddell (2007) note that the best way to choose between orthogonal and oblique rotation is to request oblique rotation to examine possible correlations among factors. Similarly, Costello & Osborne (2005) agree that using orthogonal rotation may lead to loss of 'valuable information' (p. 3) should factors were correlated, whereas they consider that oblique rotation is a more accurate solution. Velicer & Fava (1998) further support this premise, arguing that should factors are uncorrelated, oblique and orthogonal rotation should produce identical results. Costello & Osborne (2005) additionally recommend that, 'since oblique rotation will reproduce an orthogonal solution but not vice versa, [..] oblique rotation [is recommended]' (p. 7). An oblique factor rotation was therefore employed.

There are two methods of oblique rotation, promax and direct oblimin. Although the differences between these two types are minimal, promax was preferred because of 'its (relative) conceptual and computational simplicity' (Ozer *et al.,* 2007, p. 435).

During the performance of principal component analysis (PCA) with oblique rotation (promax), a conservative approach to factor retention decision-making was adopted, in which multiple criteria were used to dictate how many factors should be extracted:

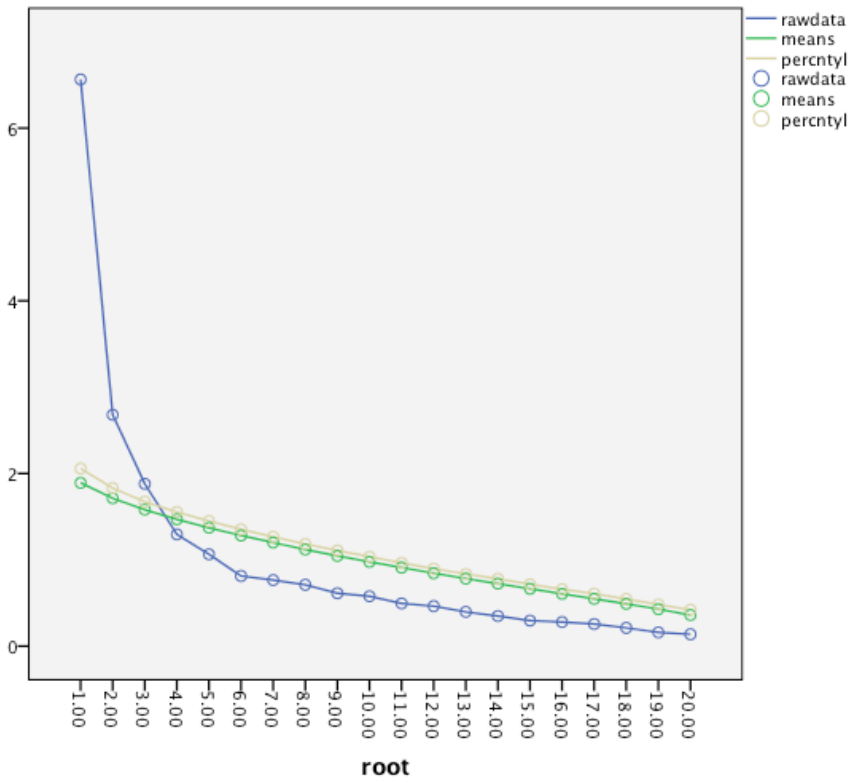
i. the eigenvalue > 1 rule (EV>1; Kaiser, 1960), whereby viable factors were retained with eigenvalues greater than 1 (Kaiser's criterion);
ii. the Cattell scree test criterion (Cattell, 1966) to visually assess the point of inflection; and
iii. parallel analysis (Horn, 1965), the latter having been considered superior to all

other procedures and 'typically yield(s) optimal solutions to the number of components problem' (O'Connor, 2000, p.4).

Factor loadings below the value of .512 were suppressed as per Stevens' (2002) recommendation for the current study's sample size.

An initial PCA was conducted for the 20-item SAM-D. The structure and pattern matrix, communalities, scree plots and rotated factor loadings for the obliquely rotated factor solution can be found in Appendix XIX. Item one had the lowest communality (.31) compared to the rest of the items and did not load well on the only factor it loaded on (factor loading .515), which was marginally above the recommended value of .512 (Stevens, 2002). It furthermore lacked conceptual coherence with its factor and was thus eliminated.

Exploratory factor analysis with promax rotation was consequently repeated for the remaining 19 items using the same criteria as for the first factor solution. The communalities, Cattell scree plot, and structure and pattern matrix for the final factor solution can be found in the Appendix XX. Although Kaiser's criterion (eigenvalue > 1 rule) and the Cattell scree plot supported a four-factor solution, the more robust parallel analysis (raw data permutation) (Figure 4.1) indicated that three factors should be extracted.



Note: Components represented as points of inflection above the yellow line (95th percentile) are statistically significant ($p<.05$)

Figure 4.1. Parallel analysis (raw data permutation) scree plot for the 19 items, indicating a three-factor solution

In the parallel analysis scree plot (Figure 4.1), three components are represented as points of inflection above the yellow line (95th percentile) which are statistically significant, $p<.05$. The mean of communalities for the items used in the analysis ($M=.57$, $SD=.11$), was satisfactory, although again marginally lower than Kaiser's criterion (keeping a factor solution when communalities are presumed to be all over .7 for an analysis with 30 or fewer items, and a sample of less than 250).

The percentage of non-redundant residuals with absolute values >.05 was less than 50 per cent, which indicates that extraction of a three-factor model had a good fit. Table 4.1 shows the factor loadings after rotation.

Table 4.1.
Factor loadings for Exploratory Factor Analysis (Promax rotation) of 19-item SAM-D.

Item Description	Positive effects	Organ/nal fac/tion	Negative effects
Music may be beneficial in the recovery from psychological problems of people with dementia	.78		
Music may reduce pain in people with dementia	.78		
Music may reduce depressive symptoms in people with dementia	.77		
Music may improve communication skills in people with dementia.	.75		
Music may be beneficial in the recovery from physical illness in people with dementia	.73		
Music may enhance recovery from physical illness in people with dementia	.71		
Music may make people with dementia more physically active.	.70		
Music may help people with dementia feel younger	.67		
Music may promote social interactions in people with dementia.	.64		
Music may improve concentration in people with dementia	.62		
Music may reduce sleep problems in people with dementia	.61		
My colleagues support the use of music in people with dementia in the ward		.86	
My ward manager supports the use of music in people with dementia in the ward.		.79	
Music may have a positive impact on staff		.74	
I wish to use music for people with dementia in the ward		.68	
Music may increase agitated behaviour in people with dementia			.87
Music may increase stress in people with dementia			.86
Music may worsen anxiety in people with dementia			.87
Music may disturb other patients in the ward			.65
Eigenvalues	6.05	3.69	2.96
α	.90	.78	.84

The items that cluster on the same component suggest that component one represents the positive ways in which music can affect dementia ('Positive effects'), component two represents how music may fit within the organisational facilitation of music in people with dementia ('Organisational facilitation'), and component three represents the possible negative effects music can have on dementia ('Negative effects'). The 'Positive effects', 'Organisational facilitation' and 'Negative

effects' subscales of the SAM-D all had acceptable to excellent reliabilities (Nunnally & Berstein,1994; Kline, 1999) as seen on the bottom of Table 4.1.

Pearson's correlations for the three resulting factors (Table 4.2) indicate that factors 'Positive effects' and 'Negative effects' & 'Negative effects' and 'Organisational facilitation' have no or negligible relationship. Nevertheless there was a medium relationship between 'Positive effects' and 'Organisational facilitation' (r= .438), the implications of which are discussed in the discussion section.

Table 4.2. Correlations for the three SAM-D factors.

	Negative effects	Organizational facilitation
Positive effects	.18	.44
Negative effects		.09

4.2.2. Sampling adequacy assessment

The sample size for EFA was marginally adequate according to Gorsuch (1983) and Kline (1979, p. 40) and predominantly included females. Although the KMO indicated sampling adequacy (KMO=.79), other criteria were consulted:

- the strength of communalities: MacCallum *et al.* (1999) suggest communalities should all be greater than .6; the mean of communalities for the 19-item SAM-D (M=.57, SD=.11) was under the recommended value of .6. This criterion was therefore considered unmet;
- the overestimation of factors: a minimum of three variables per factor is critical (Anderson & Rubin, 1956; McDonald & Krane, 1977, 1979; Rindskopf, 1984; Velicer, & Fava, 1998, p. 243). Eleven items loaded on one factor

('Positive effects'), and four items loaded on each of the other two factors ('Organisational Facilitation' and 'Negative effects'). This criterion was therefore considered met;

- the strength of item loadings within factors: if components include four or more items with loadings above .60, the factor structure may be valid to interpret regardless of the sample size (Guadagnoli & Velicer, 1988, p. 274). All item loadings were greater than .60 (Table 4.5), and as such this criterion was considered as met.

Validity refers to 'whether an instrument measures what it was designed to measure' (Field, 2009, pp.11). Face validity was established by thorough pilot work of the scale by expert reviewers as discussed in the Method chapter. Content, convergent and discriminant validity of the SAM-D was assessed by examining the relationship between its items and each item's correlation to the SAM-D total score and the ADQ total score. All but one SAM-D items were significantly correlated to the SAM-D total, with item correlations to SAM-D ranging from .29 to .71. Each SAM-D item's correlation to the ADQ Total ranged from -.13 to .41, with only 8 significant correlations out of 20, indicating that the SAM-D and the ADQ are scales tapping into different constructs.

4.3. Descriptive Statistics

4.3.1. Demographic information

In total, 101 healthcare professionals, primarily nurses, participated in the study, with the characteristics of this sample outlined in Table 4.3. The mean age of the 101

participants was 44.8 years (*SD*= 10.0), range 21-67 years. There were 13 males (12.9 per cent) and 88 females (87.1 per cent) in the sample. The mean years of experience amongst all professions was 16 years (*SD*= 9.7), range 1-40 years, with the majority of participants (72.2 per cent) having experience of 20 years or less. Male and female participants did not differ statistically significantly with regards to age ($t(99)= 0.67$, $p>.05$, $r=0.04$) or years of experience ($t(99)= -0.60$, $p>.05$, $r=0.06$). Most of the participants (92.1 per cent) had a nursing background.

Table 4.3.
Sample Characteristics.

Characteristic		Mean (SD)	N	%
Age (years)		44.8 (10)		
Gender				
Male	≤30		3	3.0
	31-40		2	2.0
	41-50		4	4.0
	51-60		4	4.0
	>60		0	0.0
	Total		*13*	*12.9*
Female	≤30		24	23.8
	31-40		22	21.8
	41-50		25	24.8
	51-60		12	11.9
	>60		5	5.0
	Total		*88*	*87.1*
Experience (years)		16.0 (9.7)		
	<10		37	36.6
	11-20		36	35.6
	21-30		22	21.8
	31-40		6	5.9
Allied Health Profession				
Staff nurse/Charge nurse/CPN			51	50.5
Nursing Assistant/Support Worker			38	37.6
Student Nurse			3	3.0
Occupational Therapist/ Assistant			4	4.0
Consultant Psychiatrist/ Trainee			3	3.0
Speech and Language Therapist			2	2.0

Overall, age means, age and gender distributions, years of experience and professional background distributions were similar to previous studies (Brodaty *et al.*, 2003; Kada *et al.*, 2009; Kang *et al.*, 2011; Moyle *et al.*, 2010; Sung *et al.*, 2011; Zimmerman *et al.*, 2005).

Responses were collected with regard to the first section of the survey (Table 4.4).

Table 4.4.

Responses of participants to the first section of SAM-D.

Question	Response	N	%
Played instrument in past?	No	61	60.4
	Yes	40	39.4
How important is music to you?	Not important at all	0	0
	Not very important	3	3
	Moderately important	49	48.5
	Very important	49	48.5
Preferred music in ward?	No music	5	5
	Either recorded or live	65	64.4
	Recorded music	23	22.8
	Live music	8	7.9
Frequency of concerts	Frequently	29	28.7
	Occasionally	45	44.6
	Rarely	19	18.8
	Never	8	7.9
Frequency of attendance	Always	10	9.9
	Often	33	32.7
	Rarely	46	45.5
	Never	12	11.9
Frequency documenting patient participation in notes	Always	23	22.8
	Often	18	17.8
	Rarely	37	36.6
	Never	23	22.8

Comparisons of different groups in the demographics using Pearson's chi-square (χ^2) or Fisher's exact tests are summarised in Table 4.5. For the purposes of comparisons, the variables 'Age' and 'Years of Experience' were collapsed into categories as presented in Table 4.1. The variables 'Importance of music', 'Preferred music in the ward', 'Frequency of concerts', 'Frequency of attendance' and 'Frequency of documenting a patient's participation' were collapsed into two categories each, e.g. 'Frequency of attendance' collapsed to 'Low attendance' (consisting of 'never' and 'rarely' answers) and to 'High Attendance' (consisting of 'often' and 'always' answers).

Table 4.5.
Chi-square/Fisher's exact tests comparisons of demographics.

	Age cat	Years of experience (cat)	AHP	Played instrument	Importance of music	Preferred music	Frequency of concerts	Frequency of att/nce	Frequency of doc/tion
Gender	3.37	0.94	9.13	0.27	0.46	0.78	1.24	2.32	3.93
Age (cat)		43.95**	39.27*	8.73	4.22	2.76	3.96	1.19	3.39
Years experience (cat)			16.12	1.94	0.39	0.36	1.57	2.00	1.10
AHP				5.05	5.13	9.67	12.10*	9.04	13.95*
Played instrument					2.03	2.30	1.53	0.66	0.26
Importance of music						0.16	2.52	0.11	0.07
Preferred music							0.12	0.10	0.92
Frequency of concerts								18.64**	10.15**
Frequency of attendance									22.39**

* $p < 0.05$ ** $p < 0.005$ (Bonferroni correction)

Older staff had more years of experience than younger staff, $\chi^2(12) = 43.95$, $p<0.001$, $V=.38$. There was no significant difference between AHPs and how important they considered music for themselves. Participants who had musical training and those who had no history of having played an instrument reported similar levels of importance of music for themselves. There was a significant association between staff attendance and frequency of concerts in the ward $\chi^2(1) =18.64$, $p<0.001$, $V=.43$. This represents the fact that, based on the odds ratio, the odds of staff attending a concert were 1.32 times higher if there were frequent concerts in the ward instead of concerts performed rarely.

Staff were more likely to document a patient's participation in a concert if there were more concerts in the ward, $\chi^2(1) = 10.15$, $p<0.001$, $V=0.32$, and if staff attended more frequently than rarely, $\chi^2(1) =22.39$, $p<0.001$, $V=0.47$. Frequency of attendance

did not significantly differ between AHPs, $\chi^2(5) = 9.04$, $p > 0.05$. Moreover, there was no significant difference in the attendance of music concerts between qualified nursing staff (charge nurses, staff nurses, CPNs) and non-qualified (student nurses and nursing assistants/support workers) nursing staff, $\chi^2(3) = 1.42$, $p > 0.05$.

Answers relevant to staff attitudes toward their participation in music concerts were also obtained (Appendix XII). Most staff (63.4 per cent) wanted to increase their attendance in music concerts. Around 59 per cent considered attendance in music concerts as part of their role. 85.2 per cent agreed/strongly agreed with the statement 'The more I help the person with dementia engage with the music the more he/she will benefit from it'. Opinions were divided as to whether music concerts increase stress in relatives/visitors in the ward. Just under a quarter of the respondents (22.8 per cent) agreed with the statement 'Music concerts help to keep the patients with dementia busy while we get on with other aspects of our job'.

4.3.2. Free recall answers

Question 29 from the second section of the SAM-D questionnaire 'What would encourage you to attend more music concerts in the ward/day hospital in the future?' allowed respondents to answer in an open-ended manner, in order to obtain non-predetermined responses.

Sixty-five participants provided responses for this question. Their verbatim responses can be seen in Appendix XIII. Responses indicated the desire for more music concerts in wards and for more purposeful music appropriate to each patient. A large proportion of answers to this question, however, had to do with organisational facilitation, congruent to the emergence of this theme as a factor in

the SAM-D. Less paperwork, adequate staffing in the ward, as well as more support from management was presumed as necessary to increase staff attendance in music concerts. Nevertheless, the majority of participants (82.2 per cent) reported that their ward manager was supportive of the use of music as an intervention in their ward. It is therefore possible that staff may need support from other managers beyond their charge nurse/nurse manager to increase their participation in music activities.

Another theme that also emerged from these free recall answers was that more staff attendance in the concerts would increase individual participation in concerts. This is in keeping with social psychology theorists advocating the strength of social learning through peer imitation and modelling (Bandura, 1986) and adherence to group pressures (Crutchfield, 1955). The themes derived from the free recall question also agree with Fessey's (2007) research who discovered that time and staffing are significant emerging themes that influence staff approaches, and that reduction in time and staffing may decrease the chances of staff using personhood-based approaches.

4.3.3 Descriptives for SAM-D, ADQ & MBI

The calculation of means, standard error of means, standard deviations, range and minimum and maximum of all scales and subscales obtained from the 101 participants are presented in Table 4.6.

Table 4.6.
Means, SE, SD, range and minimum and maximum scores of the sample for the SAM-D, the ADQ, the MBI and their subscales.

Variable	*M*	*SD*	SE Mean	Range	Min	Max
SAM-D Total	69.99	7.81	0.77	49	46	95
ADQ total	80.0	8.35	0.84	37	57	94
MBI EE	14.55	10.14	1.01	44	0	44
MBI DP	2.44	3.56	0.35	24	0	24
MBI PA	37.92	7.45	0.74	46	2	48

Note: SAM-D total = Staff Attitudes to Music -Dementia total score,; ADQ = Approaches to Dementia Questionnaire total score; MBI EE = Maslach Burnout Inventory Emotional Exhaustion; MBI DP Maslach Burnout Inventory Depersonalisation; MBI PA: = Maslach Burnout Inventory Personal Accomplishment.

Cronbach's alpha (α) coefficients were calculated for the SAM-D items to assess the internal reliability of the SAM-D. Overall, the scale indicated good reliability, in keeping with Kline's (1999) recommendations, Cronbach's α=.86.

A series of Pearson's correlations were conducted to investigate the relationship of participants' total ADQ scores and continuous demographic variables (age and years of experience) (Appendix XIV). No significant relationship was found between total ADQ scores and participant age and years of experience, although the relationship between the variables 'age' and 'years of experience' was significant, $r(101)=.53$, $p<.001$. Pearson's correlations between participant age and years of experience indicated no significant correlations for the MBI EE, MBI DP and MBI PA (Appendix XV), although there was a significant relationship between the MBI subscales EE and DP, $r(101)=.33$, $p<.01$.

Qualified nursing staff (charge nurses, staff nurses and CPNs) had significantly higher total ADQ scores (M=83.6) than their non-qualified counterparts (nursing assistants/support workers and student nurses) (M=75.2), $t(76)=-5.08$, $p<0.001$. Mean scores for the MBI EE and MBI DP between the two groups did not differ significantly, whereas qualified nursing staff had significantly higher total MBI PA scores (M=39.6) than their non-qualified counterparts (M=35.85), $t(63)=-2.26$, $p<0.05$.

4.4. Exploratory analysis

Prior to hypotheses testing, preliminary analyses were carried out on all variables to investigate the parametric assumptions of normality, homogeneity of variance and independent errors (Berry, 1993). Histograms and z-scores for skewness and kurtosis were obtained and examined for the variables SAM-D, ADQ Total, MBI EE, MBI DP and MBI PA. The Kolmogorov-Smirnov and the Shapiro-Wilk tests were also performed for each variable to assess normality of distributions. Furthermore, the Breusch–Pagan test of heteroscedasticity and the Koenker test for heteroscedasticity are sensitive to any violation of the normality assumption (Koenker, 1981) and as such were also performed. A summary of the exploratory analysis is presented in Appendix XVI.

Examination of the assumptions of parametric testing indicated that the data for the three subscales of the Maslach Burnout Inventory, Emotional Exhaustion, Depersonalisation and Personal Accomplishment (MBI-EE, MBI-DP, MBI-PA) violated the assumption of normality. More specifically, the scores of the subscales of Emotional Exhaustion and Depersonalisation were positively skewed, indicating a large proportion of low scores in the distribution. Similarly, the scores in the Personal Accomplishment subscale appeared to be negatively skewed, suggesting a build-up of high scores in the distribution. Logarithmic and square root transformations did not have a significant effect in normalising the distributions for the three MBI subscales.

The Breusch–Pagan test and the Koenker test for heteroscedasticity indicated that the variance across the residuals was not statistically significant (Breusch–Pagan test: 8.845, $p>0.05$; Koenker test: 7.713, $p>0.05$), therefore inferences derived from parametric testing would not be influenced by heteroscedasticity.

Although a violation of parametric assumptions would instruct the researcher to use non-parametric statistical analysis, it was borne in mind that t-tests and regression analyses are more robust statistical methods of data analysis than non-parametric procedures (Pedhazur, 1982). Moreover, parametric tests use the mean of the sample to detect differences between samples, and, as a result, some non-normality of samples can be well tolerated by such tests due to the Central Limit Theorem. Nevertheless, the use of parametric statistics in data which stray from the assumptions for parametric tests can result to an increased likelihood for Type I errors, the probability of tests finding false positives. Such research bias could, however, be overcome by the use of more conservative significance levels, for example, with the application of a Bonferroni correction for each alpha level.

4.5. Hypothesis Testing

4.5.1.

Hypothesis 1: It is hypothesised that dementia staff will report positive attitudes towards the use of music with people with dementia, as measured by scores on the Staff Attitudes to Music - Dementia questionnaire (SAM-D).

Frequencies of statements for each SAM-D item are summarized in Table 4.7 for each subscale.

Table 4.7.

Summary of answers (%) for the items for each factor

Factor	Item	Yes or Agree* N (%)	No or Disagree** N (%)	Not sure N(%)
Positive effects	Music may be beneficial in the recovery from psychological problems of people with dementia	86(85.1)	3(3)	12(11.9)
	Music may reduce pain in people with dementia	52 (51.5)	7 (6.9)	42 (41.6)
	Music may reduce depressive symptoms in people with dementia	90 (89.1)	1(1)	10 (9.9)
	Music may improve communication skills in people with dementia	82 (81.2)	3(3)	16 (15.8)
	Music may be beneficial in the recovery from physical illness in people with dementia	72 (71.2)	1(1)	28 (27.7)
	Music may enhance recovery from physical illness in people with dementia	68 (67.3)	1(1)	32 (31.7)
	Music may make people with dementia more physically active	91(90.2)	3(3)	7 (6.9)
	Music may help people with dementia feel younger	62(61.4)	4(4)	45 (44.6)
	Music may promote social interactions in people with dementia	90(89.1)	2(2)	9 (8.9)
	Music may improve concentration in people with dementia	70 (69.3)	8 (7.9)	23 (22.8)
	Music may reduce sleep problems in people with dementia	53 (52.5)	4(4)	44 (43.6)
Organisational facilitation	My colleagues support the use of music in people with dementia in the ward	88 (87.1)	0	13(12.9)
	My ward manager supports the use of music in people with dementia in the ward	83 (82.2)	0	18 (17.8)
	Music may have a positive impact on staff	89 (88.2)	11 (10.9)	1(1)
	I wish to use music for people with dementia in the ward	88 (87.2)	1(1)	12 (11.9)
Negative effects	Music may increase agitated behaviour in people with dementia	18 (17.9)	64 (63.4)	19 (18.8)
	Music may increase stress in people with dementia	22 (21.8)	47 (46.6)	32 (31.7)
	Music may worsen anxiety in people with dementia	26 (25.8)	40 (39.7)	35 (34.7)
	Music may disturb other patients in the ward	23 (22.8)	41(40.6)	37 (36.6)

Note: *Agree and Strongly agree combined; **Disagree and Strongly disagree combined.

Most participants agreed/strongly agreed with statements regarding the positive effects that music may have on a person with dementia, with most agreement for the statements 'Music may reduce depressive symptoms in people with dementia', 'Music may make people with dementia more physically active' and 'Music may

promote social interactions in people with dementia'. Most participants also supported statements regarding the positive effects of music on the staff and agreed that music is supported by their colleagues and manager(s). Although less agreement was evident from responses regarding negative effects of music, most participants (63.4 per cent) disagreed with the statement 'Music may increase agitated behaviour in people with dementia'.

In summary, it is evident from responses summarised in Table 4.9 that most staff held positive attitudes to the use of music for their patients.

4.5.2.

Hypothesis 2: It is hypothesised that there will be a positive correlation between attitudes to dementia, as measured by the total scores in the ADQ, and attitudes to music, as measured by the total scores in the SAM-D.

Responses from nursing staff were used to investigate this hypothesis, *N*=92 according to Field's (2009, p.133) recommendations. The correlation matrix of all independent and dependent variables is presented in Table 4.8. When Bonferroni corrections were applied, the adjusted alpha levels resulted to 0.01 (.05/5).

Table 4.8.
Pearson's correlations for ADQ, MBI and SAM-D.

Variable	MBI DP	MBI PA	MBI EE	SAM-D
ADQ_total	-.19	.28**	-.14	.39**
MBI DP		-.11	.32**	-.13
MBI PA			-.13	.27**
MBI EE				-.14

Note: * p < 0.05, ** p < 0.01 (Bonferroni corrected)

There was a significant positive relationship between the participants' scores in the SAM-D and the ADQ total score, $r(92)= .39$, $p <.001$. The variable ADQ explains 15 per cent of the variance in SAM-D scores, $r^2= .15$.

In summary, the third hypothesis assuming a positive relationship between staff attitudes to dementia and staff attitudes to the use of music for their patients is considered to be upheld.

4.5.3.

Hypothesis 3: It is hypothesised that attitudes to dementia, as measured by the ADQ, and burnout, as measured by the subscales of the Maslach Burnout Inventory (MBI) subscales Emotional Exhaustion (MBI EE), Depersonalisation (MBI DP) and Personal Accomplishment (MBI PA), will predict attitudes to the use of music, as measured by the total scores in the SAM-D.

Responses from nursing participants were used to investigate this hypothesis, N=92. Correlational analysis (Section 4.5.2. Table 4.8) indicated a significant relationship between the SAM-D and the ADQ ($r[92]= .39$, $p<.001$) and MBI PA ($r[92]= .27$, $p<.001$). Scanning the correlations table for bivariate correlations greater than or

equal to .7 (Tabachnick & Fidell, 1989) indicated the absence of multicollinearity in the data.

The independent variables entered into the initial regression model were ADQ Total, MBI EE, MBI DP and MBI PA, with the dependent variable SAM-D total using the 'Enter' method in SPSS (Type III sums of squares, Field, 2009), for two main reasons. Firstly, due to the absence of past research using this combination of dependent and independent variables, independent variables to be entered into the regression model were guided by theoretical importance and the exploration of the hypothesis (Field, 2009, p.212). Secondly, due to suppressor effects, it is possible for a variable to be a stronger predictor when the effects of other variables are held constant (Field, 2009, p.213). For these reasons, all variables hypothesised to influence the predictor variable were entered into the regression model simultaneously, including the independent variables MBI EE and MBI DP which were not correlated significantly to the SAM-D total scores. A summary of the multiple regression analysis predicting attitudes to music for people with dementia is presented below (Table 4.9).

Table 4.9.
Multiple regression analysis predicting staff attitudes to music for people with dementia (IVs: ADQ, MBI PA, MBI EE, MBI DP; DV: SAM-D).

Predictor	B	SE B	β	t	df	R^2	Adj. R^2	F
constant	40.60	7.72		5.26	(4,87)	.185	.147	4.92
ADQ Total	.29	.09	.33*	3.17				
MBI PA	.17	.16	.17	1.66				
MBI EE	-.05	.08	-.06	-.62				
MBI DP	-.06	-.06	-.03	-.26				

Note: * p<0.01

For the first step of the analysis, where independent variables relevant to answering the hypotheses were entered into the regression model, these four independent variables accounted for 18.5 per cent of the variance in SAM-D total scores.

However, only one of the predictor variables made a significant contribution to the regression model and thus was predictive of SAM-D scores, the ADQ, explaining 15 per cent of the variance in SAM-D scores.

The difference between the values of R^2 and adjusted R^2 (.185-.147=0.038) indicates that if this model was derived from the population rather than this sample, it would account for 3.8 per cent less variance in SAM-D scores, indicating that the cross-validity of this model is adequate.

To determine if the predictor variables MBI EE and MBI DP significantly improved the goodness of fit of the model, hierarchical multiple regression was conducted to decide on which model obtained the best goodness of fit. The first entered block included the independent variables ADQ Total and MBI PA, statistically significantly correlated to the dependent variable SAM-D. The second block of the analysis included the other two independent variables which were hypothesized to predict the dependent variable, MBI EE and MBI DP (Table 4.10).

Table 4.10.
Hierarchical regression analysis predicting staff attitudes to music for people with dementia (dependent variable SAM-D).

Predictor	B	SE B	β	t	df	R^2	Adj. R^2	F
Step 1								
constant	38.61	7.20		5.37	(2,89)	.179	.161	9.70
ADQ Total	.30	.09	.34*	3.37				
MBI PA	.18	.10	.18	1.76				
Step 2						.185	.147	4.92
constant	40.61	7.72		5.26				
ADQ Total	.29	.09	.33	3.18				
MBI PA	.17	.10	.17	1.66				
MBI EE	-.05	.08	-.06	-.62				
MBI DP	-.06	.23	-.03	-.26				

Note: *p<0.01

When only the statistically significant independent variables were used to predict scores in the SAM-D, the model explained 17.9 per cent of the variance in SAM-D scores. In contrast, when MBI DP and MBI EE were included in the regression model, these two independent variables explained only 0.6 per cent more of the variance in SAM-D scores. The change in the F-ratio when MBI EE and MBI DP were included was not statistically significant, $F_{change}(2,87)=.745$, $p>.05$. This result indicated that the model with only the ADQ Total and MBI PA as independent variables better fitted the data than when the MBI subscales are included into the regression.

The final model best predicting scores on the SAM-D, explaining 17.9 per cent of the variance in the total scores of the SAM-D would therefore have the following equation:

$$\text{SAM-D total score} = 38.61 + .30\ \text{ADQ total score} + .18\ \text{MBI PA}$$

As the nursing professions' scores on the ADQ increased by one standard deviation (8.73 on the scale), their SAM-D total score increased by 0.30 points, if scores on the MBI PA are held constant. Similarly, as the nursing professions' scores on the Personal Accomplishment domain of the MBI increased by one standard deviation (7.45 on the scale), their SAM-D total score increased by 0.18 points, if scores on the AQD are held constant.

With regards to testing the third hypothesis, it can be concluded that there is partial evidence to support it based on the results of the multiple regression analyses above. More specifically, attitudes to dementia as measured by the total scores in the ADQ significantly accounted for 15 per cent of the variance in the total scores of the SAM-D. The Personal Accomplishment domain of the MBI accounted for 3.5 per cent of

the variance in the total scores of the SAM-D, although its contribution was not significant. Lastly, the remaining factors related to burnout, Emotional Exhaustion and Depersonalisation, explained only 0.6 per cent of the SAM-D scores variance, a contribution that was not significant.

4.6. Diagnostics

In order to assess goodness of fit of the regression model (Table 4.12, Step 1) cases that might be influencing the regression model were investigated. Firstly, the standardized residuals were examined for extreme cases that may be significantly affecting the model fit. Ninety-five per cent of cases had standardized residuals with absolute values less than two, and all but two cases had residuals with absolute values larger than 2.5, suggesting that the error variance within the model was not significant.

Examination of Cook's distance, average leverage, Mahalanobis' distance, and covariance ratios that fall outside the upper limit, indicated that two cases may be influencing the regression model. Nevertheless, these cases were not removed from the analysis for two reasons. Firstly, their influence did not affect the proposed model; removal of those two cases did not significantly affect the model fit (R^2=.17, F (2,87)=8.96, p<.001). Secondly, according to Stevens' (2002) advice, these cases should not be deleted from the analysis, but should be explored further in order to understand why they did not fit the model, as not all outliers are influential cases.

The first case was investigated to examine how it may be affecting the goodness of fit of the model. Comparison of the participant's scores to the means and SDs from

the main measures used, indicate that although the participant's SAM-D scores were in the 50th percentile, his/her scores on the ADQ were generally lower compared to his/her colleagues. Furthermore, the participant reported a low degree of personal accomplishment and an average degree of depersonalisation, although his/her scores on the Emotional Exhaustion subscale of the MBI were similar to his/her colleagues.

The second case constituting an outlier differed from his/her colleagues with regards to age, being one of the oldest participants. Although his/her scores on the main measures were similar to his/her colleagues' (his/her scores on the SAMD being positive, and his/her ADQ, MBI EE and MBI DP scores being similar to those of her colleagues), he/she depicted low degrees of Personal Accomplishment. The reason why this person did not fit the model well is perhaps because, for most of the participants, there was a weak correlation between their scores on the MBI PA and the ADQ, and weak correlations between their MBI PA scores and the SAM-D.

An eyeball test to examine patterns in the partial plots of the residual with regards to the variables indicated the likelihood of violation of the assumption of homoscedasticity of the residuals. Nevertheless, the Breusch–Pagan test of heteroscedasticity and the Koenker test for heteroscedasticity indicated that the variance across the residuals was not statistically significant (*Breusch–Pagan test*= 9.978, $p>0.05$; *Koenker test*= 9.187, $p>0.05$), therefore inferences derived from parametric testing would not be influenced by heteroscedasticity. White's test does not assume prior knowledge of the heteroscedasticity and as such was also performed. For this reason, squares for all independent variables and the cross product for independent variables were calculated and were included in a regression analysis (*White's test statistic*= $n*R^2 = 12.296 < \chi^2$). As $n*R^2<\chi^2$, heteroscedasticity in the data was not confirmed.

4.7. Summary of results

Descriptive information indicated that the sample characteristics were similar to those from previous studies. The SAM-D, including its three subscales, 'Positive effects', 'Organisational Facilitation' and 'Negative effects', is a valid and reliable measure of staff attitudes to the use of music for people with dementia, as shown by reliability and exploratory factor analyses. There was a positive relationship between staff attitudes to dementia and staff attitudes to the use of music for their patients. Attitudes to dementia were the best independent predictor of attitudes to music, explaining 15 per cent of the variance in total SAM-D scores. Burnout did not significantly predict staff attitudes to music, although personal accomplishment was correlated to the SAM-D.

Section 5.

Discussion

5.1. Principal Findings

5.1.1. Preliminary Validation of SAM-D

Preliminary validation of the SAM-D was assessed by reliability and exploratory factor analysis of the SAM-D). Promax oblique rotation indicated the presence of three underlying factors and, as such, three SAM-D subscales, all of which had acceptable to excellent reliabilities. A strong relationship was furthermore found between two factors, 'Positive effects' and 'Organisational facilitation'. Although the criteria of overestimation of factors and the strength of item loadings for each factor were met in the assessment of sampling adequacy for Exploratory Factor Analysis (EFA), the criterion of strong communalities (communalities greater than .6; MacCallum *et al.*, 1999) was not met.

Face validity was established by pilot work of the scale by expert reviewers, however construct validity could be further assessed in future research by using the SAM-D alongside other measures assessing similar constructs. Test-retest reliability was furthermore not assessed given time and resource restrictions of this project. Although the SAM-D could successfully discriminate between 'neutral' and 'positive' scorers in the SAM-D, it is evident that the SAM-D merits further validation.

The decision to use oblique instead of the 'most commonly used' orthogonal rotation in Principal Components Analysis (Floyd & Widaman, 1995, p. 292) was confirmed by the medium correlation between two of the three factors, 'Positive effects' and 'Organisational facilitation'. This relationship may imply that when there are positive effects of music in a patient, staff may relate these effects to the

organisational facilitation of music in their ward. However, the causality of this relationship merits future investigation.

The first factor, 'Positive effects' had excellent reliability and constituted the largest factor with the most items. This is congruent with the factor structure of other attitude scales, primarily consisting of an overarching 'large' factor, which contains more attitude items (Fabrigar *et al.,* 1999). Although the percentage of explained variance in a scale should range between 40 and 60 (Scherer *et al.,* 1988), oblique rotation does not allow the summing of variance explained by the three emerging factors, due to the assumption of correlations between the factors. As such, it is unclear how much of the variance in attitudes to music was explained by scores on the SAM-D.

The 'Organisational facilitation' factor of the SAM-D had acceptable internal consistency. The general consensus from answers concerning the wider impact of music on staff, as well as how their colleagues might view the usefulness of music for their patients, was relevant to previous findings (Baker *et al.,* 2012; Choiniere, 2010; Topf & Dillon, 1988) concerning how music interventions can improve staff well-being by reducing noise and increasing positive patient-staff interactions. Nevertheless, participants were not explicitly asked whether the presence of music reduced ward noise or their burnout, or whether it improved their interactions with patients.

The third factor, 'Negative effects' had good reliability. Items loading high on this domain of the SAM-D indicated that participants generally agreed more with attitudes with regard to how music can positively affect agitation in their patients. All items in this factor were reversed, and as such one may consider if researchers from other fields of research were right to advocate against the use of reversed

items as they may reduce the internal consistency of the scale (Weijters & Baumgartner, 2012). Respondent carelessness has been previously suggested to contribute to factors being defined by reversed wording items (Schmitt & Stults, 1985; Woods, 2006).

Although EFA is commonly used in scale construction, there is no objective measure against which to test the factor solution (Tabachnick & Fidell, 2007), which makes EFA 'an error-prone procedure even with very large samples and optimal data' (Costello & Obsorne, 2005, p.8). For these reasons, caution needs to be exercised on the factor structure of this new measure, as the sample size of this study is small in comparison to studies of scale construction and validation. The importance of prudence is verified by the failure of the scale to meet the criterion for high communalities in items. The sample constituted furthermore a skewed, although representative, sample in terms of variances in populations and was overwhelmed by female nursing staff. These caveats indicate caution towards the interpretation of the factor structure of the SAM-D.

The decision to retain items whose distributions were non-normal would have been in accordance with studies indicating that EFA can tolerate violations of normality (Gorsuch, 1983), if the sample size was larger. It is therefore possible that the use of a larger sample to test the stability of this scale's factor structure may reveal the redundancy of skewed items.

Confirmatory factor analysis (CFA) may have provided more insight as to how well the three-factor structure fits the data. Nevertheless, CFA would require the recruitment of a larger and different sample than the one obtained for this research, and was thus considered unfeasible within the time frame of this study.

Re-classification of SAM-D scores would be useful for ease of interpretation and scoring in future research. As participants could obtain a minimum score of one for each question they disagreed on for this study, it is suggested that in the future the SAM-D values for 'strongly disagree' (and 'strongly agree' for negative, reversed items) has the value of zero instead of one, with scores for each questionnaire item on the five-point Likert scale ranging from zero to four instead.

Although it has long been proposed that attitudes can be measured scientifically (Thurstone, 1928), nowadays the restriction of using questionnaires by means of having to convert answers into a numerical score may pose a bias in attitude measurement. The risk of reducing complex and meaningful concepts to numerical scores is therefore elevated in this research. For this reason, results from this study should be treated with caution and future research should focus on the multidimensional measurement of attitudes, to ensure 'meaning' is maintained.

5.1.2. Hypothesis 1.

It was hypothesised that dementia staff will report positive attitudes towards the use of music with people with dementia, as measured by responses to the Staff Attitudes to Music - Dementia questionnaire (SAM-D).

Although this study found that the participants have positive attitudes to the use of music for people with dementia, there are limited conclusions to be drawn with regards to other non-pharmacological interventions for dementia. Other non-pharmacological interventions, such as reminiscence therapy and art therapy may also be viewed in a similarly positive manner. It is unclear as to whether staff reported positive attitudes to music as representative of their feelings towards non-

pharmacological interventions for people with dementia, or because they consider music to be more beneficial than other non-pharmacological approaches.

Almost a quarter of participants (22.8 per cent) viewed music concerts as an activity to distract their patients so that the staff can attend to other, possibly more urgent, duties in the ward. The finding that almost a quarter of participants saw the use of music concerts as a way to distract their patients may be related to whether those participants considered it their role to participate in the music concerts themselves. Such investigation would be beyond the purposes of this study.

Around half of the participants (52.5 per cent) disagreed with the statement 'Music concerts may increase stress in relatives/visitors', although a proportion (32.7 per cent) were unsure about what effect music may have on the relatives of people with dementia or other visitors who frequently attend music concerts. This finding has scope for further research determining differences in attitudes of music concerts and the use of music overall, between relatives/visitors in the ward, and ward staff.

5.1.3 Hypothesis 2.

It was hypothesised that there will be a positive correlation between attitudes to dementia, as measured by the total scores in the ADQ, and attitudes to music, as measured by the total scores in the SAM-D.

Attitudes to dementia had a medium positive correlation to attitudes to music for the nursing professions in the sample. More specifically, the more positive attitudes nursing professionals had towards their patients with dementia, the more positive

attitudes they depicted towards the use of music as an intervention for their patients. Staff training to increase positive attitudes towards working with people with dementia may have a direct effect not only on attitudes to dementia but also on how these same staff view interventions that may help their patients. In turn, positive attitudes to non-pharmacological interventions may increase staff participation in such activities. Increased facilitation of the intervention by staff may consequently result to an increase in the patient's engagement with the staff and in the activity, and thus possibly reducing behavioural and psychological symptoms in the person with dementia. It is therefore possible that such training might have a wider impact not only on staff attitudes but also on behavioural and psychological symptoms of dementia.

The medium correlation between attitudes to dementia and attitudes to music reinforces the connection between Kitwood's (1997) theory and how it may be applied to the attitudes to formal dementia caregivers. Enhancement of engagement and communication in the use of music can therefore be achieved by applying the principles outlined by Kitwood (1997), adapted for music activities as presented in Section 2.2.3.2, Table 2.1.

Staff attitudes to dementia, as measured by total scores in the ADQ, were more positive compared to previous research (Section 3.5.3, Table 3.3), possibly because of an increase in dementia training within the facilities where the research was conducted compared to previous studies. Nevertheless, recent reports suggest that a large proportion of dementia wards do not offer specialist dementia training and that 'government objectives for basic training and continuous professional and vocational development are some way off being realised' (Alzheimer's Society, 2012c, p.24).

An increase in staff attitudes to dementia is consistent with literature suggesting

that attitudes toward people with dementia can have positive elements (Norbergh *et al.*, 2006; Werner, 2005; Werner & Davidson, 2004). Nevertheless, in view of the fact that this research indicated overall positive attitudes to dementia, it is possible that such positive attitudes reflect a growing awareness by staff concerning the attitudes they may be expected to exhibit in questionnaires, and not necessary the beliefs or impact on their actual behaviour towards their patients. As such, social desirability and response bias in attitudes research (Polit & Beck, 2008) may be additional reasons to exercise caution concerning the interpretation of these results. The only truly reliable way of ensuring that attitude measures validly represent the behaviours they are thought to influence is to actually measure those behaviours and compare the results with attitude scores. In view of this consideration, such research can only provide a time-limited account of evaluative responses.

The psychometric properties of the subscales of the ADQ were not re-examined for this sample as the psychometric properties of the overall scale and its subscales have been previously proven to be excellent (Kada *et al.*, 2009; Macdonald & Woods, 2005; Zimmerman *et al.*, 2005). If the subscales of the ADQ were used in the analysis, this may have provided a more thorough look into how recognition of personhood and person-centred approaches were linked to attitudes to music.

This study found no relationship of scores on the ADQ and participant age. Nevertheless, this research suggested that attitudes to dementia for qualified nursing staff were more positive than attitudes to dementia for nursing assistants and support workers. This is compatible with Kada *et al.*'s (2009) research who found that nursing assistants, compared with qualified nurses, had lower scores on the Hope domain of the ADQ. Nevertheless, although the same authors report that staff with fewer years of experience exhibit lower scores on the Hope domain of the ADQ than their more experienced counterparts, this research found no differences

between ADQ scores among different years of experience.

Comparisons between participants belonging in the 'low' ADQ range (more negative attitudes to dementia) and participants in the 'high' ADQ range (more positive attitudes to dementia) may have been helpful in further investigations on what factors may differentiate between these two groups. Nevertheless, the statistical process of dichotomising ADQ scores in two categories would reduce the richness of the data this sample provided, and is also not recommended by psychometric experts (MacCallum *et al.*, 2002). The influence of factors affecting attitudes to dementia is thus constituted as a fertile ground for future researchers.

5.1.4. Hypothesis 3.

It was hypothesised that attitudes to dementia, as measured by the ADQ, and burnout, as measured by the subscales of the Maslach Burnout Inventory (MBI) subscales Emotional Exhaustion (MBI EE), Depersonalisation (MBI DP) and Personal Accomplishment (MBI PA), will predict attitudes to the use of music, as measured by the total scores in the SAM-D.

Multiple regression analysis with the independent variables ADQ, MBI EE, MBI DP and MBI PA indicated a medium effect size. The results showed that attitudes to dementia may be better predictors of attitudes to music than burnout.

Post-hoc power analysis on the data as recommended by Clark-Carter (2004) indicated that the observed statistical power of the study was .96. It is possible that there may have been a small effect size but due to this study's small sample size this was not observed.

The assumptions for parametric testing were not met, nevertheless parametric tests were used to conduct this analysis. Although conservative methods were used to conduct the analysis, such as Bonferroni corrections, the examination of the results based on the multiple regression analyses should be done with extreme caution. Such results may have been different with a larger sample, which would have allowed for more normally distributed data. Multiple regression was performed with a portion of the sample, namely nursing professions. How the final regression model could fit other professions is unclear.

Overall, the study's participants had low burnout rates, as indicated by the skewed distributions for all the subscales of the MBI. Participants' levels of emotional exhaustion, as measured by the MBI, were found to be consistent with previous studies (Cocco *et al.,* 2003; Evers *et al.,* 2002; Ilhan *et al.,* 2008; Maslach & Jackson, 1981). Nonetheless, this study's participants' scores on the domain of depersonalisation were found to be lower on average compared to previous studies, and levels of personal accomplishment were found to be generally higher than previous studies. It is therefore is possible that professionals manage their risk of burnout better than previously assumed. On the other hand, it is also possible that participants preferred not to disclose feelings of burnout in this study.

Moreover, this study found that qualified nursing staff had more feelings of personal accomplishment at work, as measured by the MBI subscale Personal Accomplishment, compared to non-qualified nursing staff. In view of the lack of a relationship between years of experience and personal accomplishment, it is unclear how obtaining a qualification in nursing can increase personal accomplishment, irrespective of how many years someone has been qualified. It is possible that personal accomplishment may therefore be mediated by other factors, such as staff support and involvement with the organisation (Melchior, Bours *et al.,* 1997), the

latter possibly increasing together with more responsibilities after obtaining a nursing qualification.

5.2. Strengths and Limitations of the Study

5.2.1. Strengths

A major strength of this study is that no other study in the UK has investigated dementia staff attitudes towards non-pharmacological interventions for people with dementia, and more specifically attitudes towards music interventions. This is especially important considering the lack of studies investigating the opinions of frontline staff towards aspects of their clinical practice. In addition, the study had good statistical power.

A further strength of this study compared to Sung *et al.*'s (2011) study and Kemper *et al.*'s (2004) study was the development and preliminary validation of a new attitudes measure whose psychometric properties have been carefully assessed, and, as such, can be useful in future studies after it is altered accordingly to investigate other non-pharmacological approaches to the treatment of people with dementia. Alongside this, another strength of this study is the use of psychometrically robust measures that are frequently used with dementia staff. This allows for replication and expansion of the evidence base for the future.

5.2.2. Limitations

The total response rate of 32.7 per cent was lower than the 75.1 per cent reported for Sung *et al.*'s (2011) study and the 75 per cent reported in Kemper *et al.*'s (2004) study, perhaps because both studies only enquired into the attitudes of healthcare staff towards music. Nevertheless, this study's response rate is comparable to other studies enquiring on attitudes to dementia and burnout where response rates range between 36 and 71 per cent (Astrom *et al.,* 1990; Kada *et al.,* 2009; Kang *et al.,* 2011; Zimmerman *et al.*, 2005). The study's sample characteristics (age and gender distribution, years of experience, distribution of professionals) were also similar to previous studies.

Most participants in this study reported low burnout scores as measured in the MBI. It is possible that staff with high burnout may have chosen not to complete the survey and therefore the representativeness of the sample is open to question. Similarly, staff with negative attitudes to the use of music may have chosen not to complete the survey.

The small sample size of this research allows only for tentative and cautionary conclusions in regards to how attitudes to dementia and burnout may predict staff attitudes to music. It is difficult to draw conclusions about specific professionals, such as occupational therapists, who are underrepresented in the sample. Moreover, even though nursing professions were clustered together in the same category, such categorisation implies that there are no differences between trained and untrained staff. This assumption may be falsified if a larger sample made discrepancies between professionals, trained and untrained more easier to identify. The sample moreover constituted predominantly of females, and thus makes conclusions with regards to attitudes of male nursing staff limited.

Confirmatory factor analysis was not possible due to the small sample size, thus restricting the psychometric robustness of the new measure. A further limitation of the current study was the use of parametric tests although assumptions of normality of data were clearly not met. Although a conservative approach to data management was employed, the results of this study may have been compromised due to an increase of Type I error, following the violation of parametric assumptions. Bootstrapping data may have been a useful approach to the management of non-normal data.

The attitudes of people with dementia participating in music interventions have been largely neglected in this study. Furthermore, the general scope of this survey failed to provide in depth information about any discrepancies that may exist between different types of music interventions and attitudes in staff.

It is possible that staff may have completed the SAM-D differently if they were asked about their attitudes to live music, in comparison to recorded music or only music therapy. Due to the alternation of the survey between questions relating to music in general (SAM-D) and questions relating to music concerts, it is possible that there was lack of clarity amongst the participants as to whether their responses to the SAM-D referred to live music, or music overall. More specifically, it is possible that completion of the first part of the survey (especially Questions 8 to 11), enquiring upon staff experiences of music concerts, may have primed participant responses for the following section of the survey consisting of the SAM-D (Questions 1 to 23). It is likely that counterbalancing the order of presentation by moving Questions 8 to 11 to the end of the survey along with Questions 24 to 29 would have been a useful strategy. Nevertheless, the impact of the alteration between questions on live music and music overall was mitigated by clarification of this issue with participants during piloting, in that the researcher clarified in

meetings that she sought participants' overall views on the use of music, of every type.

5.3. Future Research

The study's results point to the relevance of larger scale investigations in the future to assess the generalizability of the findings. It is recommended that future studies aspiring to replicate the results of this study aim for larger samples, to additionally investigate in more depth differences in attitudes between health professionals, and to consider other variables which may predict attitudes to music and, more generally, non-pharmacological interventions.

In view of the fact that the future of dementia care may be predominantly community based (Minghella & Schneider, 2012), the attitudes of health professionals towards the use of music interventions in community settings can be examined in future studies. Future research could also aim to investigate staff knowledge of the evidence base for non-pharmacological interventions, to determine the relationship between staff knowledge and attitudes towards interventions, in view of research suggesting that staff knowledge on non-pharmacological interventions is limited (De Keyser *et al.*, 2001). Future researchers should aim to also enquire upon the training dementia staff have received, as this may be a contributing factor in shaping staff attitudes towards non-pharmacological dementia approaches.

Although this study mainly examined attitudes towards music in staff working with people with dementia, future studies could assess differences in attitudes of staff working in different areas, such as medical wards (where music concerts are

also frequently conducted), as well as mental health wards, where the practice of music interventions may have a better evidence-base. Relatives could also be enquired upon their attitudes towards facilitating engagement with music since their presence in music concerts is frequent. The SAM-D could also be used to assess discrepancies between dementia staff attitudes to music, and relatives and family attitudes to music, based on the fact that both parties frequently facilitate the person's participation in music concerts.

Future studies could further look at what role conservatism may play in determining attitudes towards non-pharmacological approaches, by means of other scales, such the Conservatism Scale (Wilson & Patterson, 1968), considering that medically-trained staff (e.g. GPs and psychiatrists) may have different attitudes to non-pharmacological approaches than staff from a non-medical training background (e.g. Occupational Therapists, Speech and Language Therapists). Future research could also investigate the role of staff self-efficacy, possibly using the Self-Efficacy Scale (Schwarzer & Jerusalem, 1995), especially considering the conceptual similarity between the Personal Accomplishment subscale of the Maslach Burnout Inventory (correlating with staff attitudes to music) and concepts of self-efficacy. In addition, measures such as the Ward Atmosphere scale (Moos, 1989) or the Dementia Care Mapping tool developed by the Bradford Dementia Group would be able to more directly assess the impact of music in the ward for both staff and patient populations, in order to consider associations between staff attitudes and behaviours. Another measure that could be used alongside a replication of this study is the Dementia Attitudes Scale (O'Connor & McFadden, 2010) which can help assess whether the results from the ADQ may be replicable. Lastly, the Strain in Nursing Care Assessment Scale (Brodaty *et al*., 2003; Hallberg & Norberg 1995), or the Satisfaction with Nursing Care and Work Assessment Scale (SNCW) (Brodaty *et al*., 2003; Hallberg *et al.,* 1994) may help to better assess the

connections between strain and work satisfaction in staff and staff attitudes to music interventions, thus indirectly circumventing disclosure issues more evident in the assessment of burnout using the MBI.

Future researchers could also conduct more in-depth research on how person-centred care may predict positive attitudes to the use of music as an intervention for their patients. The use of the Recognition of Personhood subscale of the ADQ may be a useful tool in the future to assess this is more detail.

Although this study found that positive attitudes to dementia predict positive attitudes to the use of music, the means by which this is predicted is still unclear. This relationship should be investigated further based on the premise that Lintern (2001) found a relationship between staff attitudes to dementia and staff engagement in ward activities and social interaction with their patients.

5.4. Theoretical Implications

The literature review indicated caveats in the evidence base for music interventions. Therefore, a clear goal for future research is to establish a more robust evidence-base for music interventions, and any differences there may be in the evidence-base for different music interventions, such as music therapy or Singing for the Brain (music groups organised by Alzheimer's Society) in contrast to music concerts (Raglio *et al.,* 2012), and other, technology assisted interventions which have recently started to develop an evidence-base in dementia care (Garland *et al.,* 2007; Oshima *et al.,* 2012).

Katz & Stotland's (1959) modification of the tripartite approach to attitudes (that attitudes have three components; affect, cognition and behaviour) to represent 'attribution of good and bad qualities' (Katz & Stotland, 1959, p.430), may mirror the emergence of the 'Positive effects' and 'Negative effects' factorial structure of the SAM-D.

5.5. Clinical Implications

The study's findings that dementia staff have a positive attitude towards the use of music implies that other areas need to be investigated further to ascertain the impact music interventions can have in a hospital ward. The literature points to a possible benefit of live individualised music for each patient compared to generic or recorded music (Cooke *et al.*, 2010a; Cooke *et al.*, 2010b; Holmes *et al.*, 2006; Sherratt *et al.*, 2004b), but this premise needs to be established within an evidence-based framework. Nevertheless, there is scope for shaping up clinical practice with more information provided by the nursing staff who book music concerts with regards to music requests people with dementia may have, and to ensure increased staff attendance in music concerts to facilitate patient engagement and positive communication with formal caregivers. Ensuring that formal dementia caregivers have adequate time to facilitate patient engagement in a music concert requires an environment of legitimacy of music as an intervention and protected time for staff as authorised by the ward manager and the wider organisation. The evidence-base for the use of music in people with dementia, nevertheless, is limited to support such a contract.

The subject of how technology can facilitate meaningful activities and music in dementia wards is under-researched, although recent evidence suggests there is a scope for technology to help ascertain personalised meaningful patient activities (Leone *et al.*, 2012) and to further facilitate music interventions (Garland *et al.*, 2007; Oshima *et al.*, 2012).

Minghella & Schneider's (2012) recommendation for dementia care to be delivered in the community may have important implications for the delivery of music and other non-pharmacological interventions, as it is largely based upon the facilitation of the approach by formal and informal caregivers.

Even though this study's findings support that formal dementia caregivers have positive attitudes concerning the use of music with their patients, there is limited reason to indicate these positive attitudes may predict changes in the staff's behaviours. Social psychologists advocate that changes in behaviour predict changes to our attitudes (Festinger, 1964). Similarly, the theory of planned behaviour (Ajzen, 1991) suggests that attitudes only partly explain behaviour, and that other concepts, such as subjective norms and perceived control, may also influence behaviour. On the other hand, evidence also suggests that when attitudes change due to personal experience, they are more likely to endure and to influence actions (Fazio & Zanna, 1981).

This research points to clear barriers between awareness and delivery of evidence-based practice. Cohen Mansfield *et al.* (2012) recently discovered that around 70 per cent of staff considered major barriers to the delivery of non-pharmacological interventions to lie within staff and environmental factors. They suggest that staff training would improve access to non-pharmacological interventions. An important

issue that may have emerged in this study is the importance of organisational facilitation of music concerts.

Newcomb, Turner and Converse (1965) also suggest that an important factor in attitude change is lack of information. In turn, more than half of the participants (59 per cent) considered attendance in music concerts as part of their role. These participants were more likely to have more positive attitudes to the use of music if they considered attendance in a music concert as part of their role. This may have future clinical implications in clarifying to staff in their induction how they are expected to facilitate a patient's participation in music concerts. It is possible that, bearing in mind how attitudes to dementia an attitudes to music are related, staff could benefit from training and information on how to facilitate a patient's engagement in a music concert, from a person-centred perspective. In this vein, the author, in collaboration with the Music In Hospitals committee have recently developed a set of recommendations based on Kitwood's 12 steps for positive interaction during music concerts, as a way of encouraging person-centred use of music approaches (Appendix XXI).

5.6 Conclusions

A new measure assessing a vague construct such as attitudes to the use of music is difficult to develop. It is likely that staff attitudes is a multifaceted, interactive and difficult concept to measure, meriting further research. Nevertheless, other researchers now have a tool when designing new studies assessing attitudes. Staff attitudes to dementia and their attitudes to the use of music for their patients have

an interesting relationship. As such, alongside the evidence-base for music, staff attitudes should be investigated in parallel.

Section 6. References

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Section 7.

Appendices

Appendix I

Dissemination of the study

Conference poster(s)

- Papageorgiou, E. (2012). *Music makes the ward go round: the role of staff attitudes and burnout in the use of music for people with dementia.* Poster presented at the DCP-Scotland conference (October 2012), Edinburgh, UK.

- Papageorgiou, E. (2012). *Music makes the ward go round: the role of staff attitudes and burnout in the use of music for people with dementia.* Poster presented at the Psychologists' Special Interest Group for the Elderly (PSIGE) conference (June 2012), Division of Clinical Psychology, British Psychological Society, Bristol, UK.

- Papageorgiou, E. (2012). *Music makes the ward go round: the role of staff attitudes and burnout in the use of music for people with dementia.* Poster presented at the NHS Lothian psychology research conference (June 2012), Edinburgh, UK.

Journal Article(s)

- Papageorgiou, E. (2012). Does music make the ward go round? The role of staff attitudes and burnout in the use of music for people with dementia. *Psychologists' Special Interest Group for the Elderly (PSIGE) Newsletter, Division of Clinical Psychology, British Psychological Society, 121,* 44-47.

Presentations(s)

- Papageorgiou, E. (2012). *Music makes the ward go round: the role of staff attitudes and burnout in the use of music for people with dementia.* Paper presented at the meeting of Psychologists' Special Interest Group for the Elderly (PSIGE), Division of Clinical Psychology, British Psychological Society, Glasgow, UK.

Appendix II.

Ethics Approval from the Local NHS Ethics Officer

South East Scotland Research Ethics Service

Waverley Gate
2-4 Waterloo Place
Edinburgh
EH1 3EG

NHS Lothian

Name: [redacted]
Address: School of Health in
Social Science
Medical School
University of Edinburgh
Edinburgh
EH8 9AG

Date: 18/11/2011
Your Ref:
Our Ref: NR/1102AB02
Enquiries to: Alex Bailey
Direct Line: 0131 465 5679
Email: alex.bailey@nhslothian.scot.nhs.uk

Dear [redacted],

Full title of project: The Role of Staff Attitudes and Burnout in the Use of Music for People with Dementia

You have sought advice from the South East Scotland Research Ethics Service on the above project. This has been considered by the Scientific Officer and you are advised that, based on the submitted documentation (1Project summary for ethics review.doc, Attitudes to Dementia Questionnaire .docx, ethics research proposal draft [redacted], Maslach Burnout Inventory.docx, Project summary for ethics review.doc, Questionnaire Attitudes music dementia v2.doc,), it does not need NHS ethical review under the terms of the Governance Arrangements for Research Ethics Committees in the UK. The advice is based on the following:

- *The project is an opinion survey seeking the views of NHS staff on a healthcare issue.*

If this project is being conducted within NHS Lothian you should inform the relevant local Quality Improvement Team(s).

This letter should not be interpreted as giving a form of ethical approval or any endorsement of the project, but it may be provided to a journal or other body as evidence that ethical approval is not required under NHS research governance arrangements. However, if you, your sponsor/funder or any NHS organisation feels that the project should be managed as research and/or that ethical review by a NHS REC is essential, please write setting out your reasons and we will be pleased to consider further. Where NHS organisations have clarified that a project is not to be managed as research, the Research Governance Framework states that it should not be presented as research within the NHS.

You should retain a copy of this letter with your project file as evidence that you have sought advice from the South East Scotland Research Ethics Service.

Yours sincerely,

Alex Bailey
Scientific Officer
South East Scotland Research Ethics Service

1

Appendix III.

Ethics Approval from the Local Quality Improvement Teams

Project approval

From: **Hutcheson, Fiona** (Fiona.Hutcheson@nhslothian.scot.nhs.uk)
Sent: 17 December 2012 12:07:51
To: [redacted]@hotmail.com)
1 attachment
Project Completion Form - June 2010.doc (51.5 KB)

Hi [redacted],

I'm glad to say that the REAS approval group are happy to grant approval for your project 'The Role of Staff Attitudes and Burnout in the Use of Music for People with Dementia' in the wards at the Royal Edinburgh Hospital. This decision will be recorded formally in the minutes of the next REAS Quality Improvement Team meeting which is on 9th January 2013.

The East & Midlothian Mental Health Quality Improvement Team has also reviewed and approved your project in the East Lothian and Midlothian wards. That decision was recorded in the minutes of the meeting held on 10 December.

Both groups felt that this was a very interesting aspect and would be grateful to receive a copy of your final report please to see the outcome of the study, either in a format you are already producing or using the attached template. Thanks.

I have passed on your proposal to Carolyn Swift who is the facilitator for the Medicine of the Elderly QIT and you will hopefully hear back fro that group very soon.

With best wishes
Fiona

Fiona Hutcheson
Clinical Effectiveness Facilitator
Ground Floor, Pentland House
47 Robb's Loan
EDINBURGH
EH14 1TY

E-mail: fiona.hutcheson@nhslothian.scot.nhs.uk

Tel: 0131 537 8533 (88533)
Fax: 0131 537 8502

Appendix IV.

The staff attitudes to music survey by Kemper *et al.* (2004).

Experiences, Attitudes and Expectations toward Music for Newborn Infants

STAFF Survey
(RN's, ARNP's, Social Work, PT, OT, RT, Pharmacy, Volunteers, etc)

We are conducting a survey to determine how the experiences and attitudes of neonatology staff affect their expectations of music therapy for newborn infants and their own work satisfaction and self-perceived job performance.
The information from this survey will be kept entirely confidential. Neither your name nor any identifying information about you will be used in any reports arising from this project.
We plan to use the data from this survey to design a research project to evaluate the impact of different kinds of music therapy a) on newborn infants' stress, growth, behavior and development and b) on staff job satisfaction.
Your performance evaluation will not be affected by your participation in this survey. If you have any questions about the survey, please contact Dr. Kathi Kemper 716-1292 or Dr. Steve Block. Dr. Rebecca Shoaf plans to include data from this survey in her Grand Rounds presentation her 3rd year of residency. Your participation will help a lot!

NAME: _____

We will detach the cover page before we enter or analyze the data to protect your confidentiality, but we want to know who has NOT returned questionnaires so we can remind them (gently, of course!)

Date survey completed: _____

Please return this survey to Dr. Steve Block or Renee Foley (Dr. Kemper's assistant) by Monday, February 24, 2003.

Appendix IV. continued

Experiences with Music

Two years ago, a harpist provided music in the Neonatal Intensive Care Unit. Many *staff* seemed to like it, though the primary purpose was to decrease stress in the *babies*.

1. Have you spent *any* time providing clinical care in the Neonatal Intensive Care Unit (NICU) or intermediate care nursery (ICN) at Brenner Children's Hospital (WFUBMC)?

YES **NO**

2. Have YOU ever been present during *live* musical performances in any *clinical care* setting (including hospital, clinic, hospice)?

YES ***NO***

3. Do you have ANY musical training, (eg. chorus, musical instrument, band, orchestra, piano in school or church)? **YES** **NO**

4. Would you like to have music played in the neonatal intensive care or intermediate care nursery while you are working?

YES **NOT SURE**

NO

5. If harp music is played in the NICU or ICN, would you prefer the music: (circle one)

LIVE PERFORMANCE or **EITHER/DON'T CARE** or **TAPE/CD**

6. Over the last 30 days, on average, how long do you listen to music (even if it's just in the background while driving, working, or doing chores on days you are NOT ON CALL in the hospital)? (circle best answer)

1	**2**	**3**	**4**	**5**
< 30 minutes	**30 – 59 minutes**	**60 – 119 minutes**	**2-3 hours**	**> 3 hours**

7. The best music for newborn babies to listen to is/are (choose one from each row):

__ LIVE PERFORMANCE **__RECORDED/CD/ TAPE** **__ NOT SURE**

__ CLASSICAL/INSTRUMENTAL **__ POP/ROCK** **__ NOT SURE**

__ HARP/ACOUSTIC GUITAR **__ BRASS/ PERCUSSION** **__ NOT SURE**

8. If a person played a musical instrument (live performance) in the NICU/ICN, do you think *you* would most likely (check best answer):

__ Be as quiet as possible **__ Talk "over" the music** **__ Not sure**

Appendix IV. continued

9. If a *recorded music* was playing in the NICU/ICN (like the musical mobiles that hang over some beds or a CD or audiotape), do you think you'd most likely (check best answer):

__ Be as quiet as possible __ Talk "over" the music __ Not sure

Attitudes toward music for infants

For each of the following, please check whether you strongly agree (SA), agree (A), Not sure or neutral (N), disagree (D), or strongly disagree (SD).

	Strongly agree	Agree	Not sure/ Neutral	Disagree	Strongly disagree
10. Newborn infants are too young to be affected by music.	SA	A	N	D	SD
11. Music can help relieve pain.	**SA**	**A**	**N**	**D**	**SD**
12. Music can enhance growth and recovery from injury and illness.	SA	A	N	D	SD
13. Music can improve mood.	**SA**	**A**	**N**	**D**	**SD**
14. Music is generally worthless when patients are very sick.	SA	A	N	D	SD
15. Music therapy only works for "New Age" types.	**SA**	**A**	**N**	**D**	**SD**
16. Music can lift spirits and boost energy and vitality.	SA	A	N	D	SD
17. Music therapy is worth studying.	**SA**	**A**	**N**	**D**	**SD**
18. Music therapy is all fake.	SA	A	N	D	SD
19. Music therapy is good only for patients with psychological problems.	**SA**	**A**	**N**	**D**	**SD**
20. Music therapy causes neurologic problems, bleeding, bruising, soreness, fatigue and might spread AIDS.	SA	A	N	D	SD
21. Music can reduce stress in newborns	**SA**	**A**	**N**	**D**	**SD**
22. *Live harp music* startles and stresses newborns.	SA	A	N	D	SD
23. *Live harp music* relaxes newborns.	**SA**	**A**	**N**	**D**	**SD**
24. Music can ease psychological stress and loneliness in newborns.	SA	A	N	D	SD
25. Music can help reduce crying behavior in newborns.	**SA**	**A**	**N**	**D**	**SD**
26. Music might delay acquisition of developmental milestones in newborns.	SA	A	N	D	SD
27. Music can help babies achieve developmental milestones more quickly.	**SA**	**A**	**N**	**D**	**SD**

28. *Live harp music* is probably more effective than *recorded music* in reducing infants' stress.	SA	A	N	D	SD
29. Noise in the NICU and ICN probably contributes to *infants'* stress.	**SA**	**A**	**N**	**D**	**SD**

Expectations about Music for infants.

For each of the following, please check whether **you** strongly agree (SA), agree (A), Not sure or neutral (N), disagree (D), strongly disagree (SD)

The following questions refer specifically to HARP MUSIC in the NICU/ICN. **I expect that……**	**Strongly agree**	**Agree**	**Not sure/ Neutral**	**Disagree**	**Strongly disagree**
30. … the ambient *noise* in the nursery increases babies' stress	SA	A	N	D	SD
31. …listening to music would improve babies' *sleep*.	SA	A	N	D	SD
32. … listening to music would increase infants' *activity levels*.	SA	A	N	D	SD
33. …listening to music would *interfere* with babies' ability to fall asleep and get the rest they need.	SA	A	N	D	SD
34. … listening to music would improve infants' *growth and weight gain*.	SA	A	N	D	SD
35. … listening to music improves babies' *temperaments* and decreases *behavioral problems* such as colic.	SA	A	N	D	SD
36. listening to music can improve infants' *cognitive development*.	SA	A	N	D	SD
37. … listening to music makes babies more *agitated* and fussy.	SA	A	N	D	SD
38. … listening to music *interferes* with babies' being able to attend to verbal cues and learn language skills.	SA	A	N	D	SD
39. … when someone is *performing music*, I make *more mistakes*.	SA	A	N	D	SD
40. … when someone is *performing music*, I *talk more* than usual	SA	A	N	D	SD
41. …the general, ambient *noise* in the NICU/ICN probably contributes to *my* stress.	SA	A	N	D	SD
42. … music helps *me* focus and perform required tasks better.	SA	A	N	D	SD
43. …music helps *ME* do my job better.	SA	A	N	D	SD

44. …having live music in the NICU helps me *feel more appreciated* and special in my job.	SA	A	N	D	SD

Expectations about Music in the NICU/ICN, continued.
For each of the following, please check whether **you** strongly agree (SA), agree (A), Not sure or neutral (N), disagree (D), strongly disagree (SD)

The following questions refer specifically to HARP MUSIC in the NICU/ICN. **I expect that……**	**Strongly agree**	**Agree**	**Not sure/ Neutral**	**Disagree**	**Strongly disagree**
45. … having live music in the NICU *interferes* with my *relationships* with families and staff	SA	A	N	D	SD
46. … having *live music* in the NICU makes me *proud* of my workplace.	SA	A	N	D	SD
47. … after awhile I would just "tune out" *live harp music* and talk louder to be heard	SA	A	N	D	SD
48. … having live music in the NICU makes me feel *ashamed* of my workplace and embarrassed to be in such a weird place.	SA	A	N	D	SD
49. … when there is *recorded music* (such as mobiles, CDs or tapes) in the nursery, *other staff* talk louder than usual.	SA	A	N	D	SD
50. …*recorded* music (such as mobiles, CDs or tapes) *increases* the general *stress* level among the *staff.*	SA	A	N	D	SD
51. … *live music* increases *staff satisfaction* with the NICU/ICN	SA	A	N	D	SD
52. … *live music* can *decrease stress* in *parents*.	SA	A	N	D	SD
53. *… live musical performances* in the nursery would probably make parents more *satisfied* with the care their baby receives.	SA	A	N	D	SD
54. … listening to live music in the NICU is so *negative* that parents will want to *avoid* playing music for their babies at home after they are discharged.	SA	A	N	D	SD
55. … listening to *live music* makes parents want to stay longer and *increases infants' length of stay*.	SA	A	N	D	SD
56. …playing music in the NICU might make *parents* more likely to play music for their babies after discharge.	SA	A	N	D	SD
57. … playing music in the NICU might make parents feel *less capable* of caring for their infant	SA	A	N	D	SD

Appendix IV. continued

These questions are about YOU, the respondent.

Demographics

Type of Medical Professional (circle best descriptor of you)
__ MD or DO
__ RN, LPN, Nursing aid or ARNP (ALL nursing staff)
__ PT/OT/RT
__ Social work/Pastoral care/Counselor
__ Pharmacist
__ Clerical, administrative or research staff
__ Volunteer
__ Other; describe _____

Age in years: _____

Gender: (Check one) __ Male __ Female

Any comments or feedback on this questionnaire? _____

_____

Please return to Dr. Steve Block, Dr.Kathi Kemper or Renee Foley
by MONDAY -- February 24
THANK YOU!

Appendix V.

The staff attitudes to music in dementia survey by Sung *et al.* (2011).

照護人員對失智老人使用音樂療法的態度及期望問卷

(請在合適的號碼中圈選或打勾，每題只能圈選一個號碼)

	非常不同意	不同意	無意見	同意	非常同意
音樂療法的影響					
1. 音樂可以改變失智老人心跳、呼吸及血壓	1	2	3	4	5
2. 音樂可以促進失智老人身體活力及疾病的恢復	1	2	3	4	5
3. 音樂療法對失智老人生理疾病較有效	1	2	3	4	5
4. 音樂療法對失智老人心理疾病較有效	1	2	3	4	5
5. 音樂療法可以改善失智老人憂鬱情緒	1	2	3	4	5
6. 音樂療法可以減輕失智老人疼痛	1	2	3	4	5
7. 音樂療法可控制失智老人躁動行為	1	2	3	4	5
8. 音樂療法可以轉移或促進失智老人注意力	1	2	3	4	5
9. 音樂療法可以促進失智老人身體活動功能	1	2	3	4	5
10. 音樂療法可以改善失智老人睡眠問題	1	2	3	4	5
11. 音樂療法可以促進失智老人社交互動	1	2	3	4	5
12. 音樂療法可以減輕失智老人焦慮	1	2	3	4	5
13. 音樂療法可以增加失智老人語言表達能力	1	2	3	4	5
14. 音樂療法可以減輕失智老人壓力	1	2	3	4	5
15. 音樂療法可以促進失智老人的活力及精神	1	2	3	4	5
16. 音樂療法可做為失智老人有效的照護活動之一	1	2	3	4	5
17. 音樂療法會促進失智老人的病情恢復	1	2	3	4	5
17. 主管會贊成在單位對失智老人使用音樂療法	1	2	3	4	5
18. 同事會贊成在單位對失智老人使用音樂療法	1	2	3	4	5
19. 我會希望在單位對失智老人使用音樂療法	1	2	3	4	5
20. 在單位使用音樂不會干擾到其他病人	1	2	3	4	5
21. 在單位使用音樂不會干擾我工作的情緒	1	2	3	4	5
22. 在單位使用音樂不會干擾我工作的效率	1	2	3	4	5
23. 單位使用音樂對工作人員有正向的效果	1	2	3	4	5

Appendix V. continued

照護人員使用音樂療法的經驗及影響因素問卷

請於空格中勾選合適的項目：

1.是否參加過音樂療法的課程或訓練：□無 □有

2.音樂對自己本身重不重要：□不重要 □稍微重要 □中等程度的重要 □非常重要

3.自己喜好的音樂有那些(可複選)：□無特別偏好 □國語流行音樂 □台語流行音樂 □西洋流行音樂 □西洋古典音樂 □東洋音樂 □國台語老歌 □宗教音樂 □原住民音樂 □樂器演奏音樂 □其他(_____)

4. 自己是否曾經使用過音樂療法： □無 □有

5. 是否曾經對家人及朋友使用過音樂療法： □無 □有

6. 是否曾經對照護過的失智老人使用過音樂療法： □無 □有

7. 那些因素會影響你在工作中對失智老人使用音樂療法 (可複選)

□缺乏音樂療法的知識及技能

□缺乏音樂療法的訓練

□工作上沒時間提供音樂療法

□在機構中缺乏音樂療法相關的設備及資源

□自己缺乏信心執行音樂療法

□自己沒有意願學習音樂療法

□其他 _____

Appendix VI.

Final version of SAM-D (reversed items in red font)

For office use

Staff survey

Demographics

1. Type of Health Professional (tick best descriptor of you):

- ❑ Staff Nurse / Charge Nurse / CPN
- ❑ Nursing assistant/ Support Worker
- ❑ Physiotherapist / Physio Assistant
- ❑ Occupational Therapist /OT Assistant
- ❑ Social worker
- ❑ Consultant Psychiatrist/Trainee Psychiatrist
- ❑ Consultant Physician/Trainee Physician/ Medical student
- ❑ Volunteer
- ❑ Other (please specify) .....

1____

2. Age (to the nearest whole year): .....

2____

3. Gender (Tick one) :

3____

- ❑ Male
- ❑ Female

4. Years of experience in working with people with dementia: .....

4____

Experiences with Music

5. Have you spent *any* time providing clinical care to people with dementia?

5 ____

- ❑ Yes
- ❑ No

6. Do you play or have played any music instruments in the past?

6 ____

- ❑ Yes
- ❑ No

7. How important is music to you? (tick one answer)

7 ____

- ❑ Very important
- ❑ Moderately important
- ❑ Not very important
- ❑ Not important at all

8. If music was played in the ward/day hospital would you prefer it to be: (tick one answer)

8 ____

- ❑ Recorded (from a CD or tape player)
- ❑ Live (live music performance, music therapy)
- ❑ Either recorded or live music
- ❑ I would rather not listen to music when I am working

9. How often are there music concerts (the playing of live music by one or more people) in the ward/day hospital?

9 ____

❑ Frequently ❑ Occasionally ❑ Rarely ❑ Never

10. How often do you attend a music concert in the ward/day hospital?

10____

❑ Always ❑ Often ❑ Rarely ❑ Never

11. How often do you document the patients' participation in a music concert in their hospital notes?

11____

❑ Always ❑ Often ❑ Rarely ❑ Never

Appendix VI continued

Attitudes towards music for people with dementia

We would like your general opinions on the following statements, as we realize that music can affect a person in different ways. Please indicate to what extent you agree or disagree with each of the following statements by ticking the relevant box:

In my overall opinion,	***Strongly Agree***	***Agree***	***Neither Agree nor Disagree***	***Disagree***	***Strongly Disagree***
1. Music may affect heartbeat, breathing & blood pressure in people with dementia.	❑	❑	❑	❑	❑
2. Music may enhance recovery from physical illness in people with dementia.	❑	❑	❑	❑	❑
3. Music may be beneficial in the recovery from physical illness in people with dementia.	❑	❑	❑	❑	❑
4. Music may be beneficial in the recovery from psychological problems of people with dementia.	❑	❑	❑	❑	❑
5. Music may reduce depressive symptoms in people with dementia.	❑	❑	❑	❑	❑
6. Music may reduce pain in people with dementia.	❑	❑	❑	❑	❑
7. Music may increase agitated behaviour in people with dementia.	❑	❑	❑	❑	❑
8. Music may improve concentration in people with dementia.	❑	❑	❑	❑	❑
9. Music may make people with dementia more physically active.	❑	❑	❑	❑	❑
10. Music may reduce sleep problems in people with dementia.	❑	❑	❑	❑	❑
11. Music may promote social interactions in people with dementia.	❑	❑	❑	❑	❑
12. Music may worsen anxiety in people with dementia.	❑	❑	❑	❑	❑
13. Music may improve communication skills in people with dementia.	❑	❑	❑	❑	❑
14. Music may increase stress in people with dementia.	❑	❑	❑	❑	❑
15. Music may help people with dementia feel younger.	❑	❑	❑	❑	❑
16. Music may be an overall ineffective care tool for people with dementia.	❑	❑	❑	❑	❑
17. My ward manager supports the use of music in people with dementia in the ward.	❑	❑	❑	❑	❑
18. My colleagues support the use of music in people with dementia in the ward.	❑	❑	❑	❑	❑
19. I wish to use music for people with dementia in the ward.	❑	❑	❑	❑	❑
20. Music may disturb other patients in the ward.	❑	❑	❑	❑	❑
21. Music would not affect my emotions at work in the ward.	❑	❑	❑	❑	❑
22. Music may interfere with my performance at work.	❑	❑	❑	❑	❑
23. Music may have a positive impact on staff.	❑	❑	❑	❑	❑

Appendix VI continued

Staff participation in music concerts

Please indicate to what extent you agree or disagree with each of the following opinion statements by ticking the relevant box:

	Strongly Agree	Agree	Neither Agree nor Disagree	Disagree	Strongly Disagree
24. I would like to increase my attendance at music concerts in the ward/day hospital.	❑	❑	❑	❑	❑
25. It is not part of my role to participate in music concerts**.**	❑	❑	❑	❑	❑
26. The more I help the person with dementia engage with the music the more he/she will benefit from it.	❑	❑	❑	❑	❑
27. Music concerts may increase stress in relatives/visitors.	❑	❑	❑	❑	❑
28. Music concerts help to keep the people with dementia busy while we get on with other aspects of our job.	❑	❑	❑	❑	❑

29. What would encourage you to attend more music concerts in the ward/day hospital in the future?

……

……

……

----- please turn over page----

Appendix VII.

Translation stages for the SAM-D

Mandarin version	English translated version	Back translation	Expert reviewer changes (*Items reversed*)
音樂可以改變失智老人心跳、呼吸及血壓	Music can affect Alzheimer's sufferers' (AS) heartbeat, breathing & blood pressure	Music can affect heartbeat, breathing & blood pressure in older people with dementia	Music may affect heartbeat, breathing & blood pressure in people with dementia.
音樂可以促進失智老人身體活力及疾病的恢復	Music can improve AS physical ability and disease (illness) recovery	Music can improve physical functions and illness recovery for older people with dementia.	Music may enhance recovery from physical illness in people with dementia.
音樂療法對失智老人生理疾病較有效	Music therapy is more effective on AS physiological related diseases.	Music therapy is more effective on dementia physiological diseases	Music may be beneficial in the recovery from physical illness in people with dementia.
音樂療法對失智老人心理疾病較有效	Music therapy is more effective on AS psychological related diseases.	Music therapy is more effective on dementia psychological diseases.	Music may be beneficial in the recovery from psychological problems of people with dementia.
音樂療法可以改善失智老人憂鬱情緒	Music therapy can mitigate AS depression	Music therapy can reduce depressive symptoms in older people with dementia	Music may reduce depressive symptoms in people with dementia
音樂療法可以減輕失智老人疼痛	Music therapy can alleviate AS pain	Music therapy can alleviate pain in dementia	Music may reduce pain in people with dementia.
音樂療法可控制失智老人躁動行為	Music therapy can control AS restless behaviour	Music therapy can control agitated behaviour in older people with dementia	*Music may increase agitated behaviour in people with dementia.*
音樂療法可以轉移或促進失智老人注意力	Music therapy can divert or improve AS concentrations	Music therapy can divert or improve concentrations in older people with dementia	Music may improve concentration in people with dementia.
音樂療法可以促進失智老人身體活動功能	Music therapy can enhance AS physical movement functions	Music therapy can enhance physical movements in older people with dementia	Music may make people with dementia more physically active.
音樂療法可以改善失智老人睡眠問題	Music therapy can reduce AS insomnia	Music therapy can reduce sleep problems in older people with dementia	Music may reduce sleep problems in people with dementia.
音樂療法可以促進失智老人社交互動	Music therapy can promote AS socialisation	Music therapy can promote social interactions in older people with dementia	Music may promote social interactions in people with dementia.
音樂療法可以減輕失智老人焦慮	Music therapy can lighten AS anxiety	Music therapy can alleviate anxiety in older people with dementia	*Music may worsen anxiety in people with dementia.*
音樂療法可以增加失智老人語言表達能力	Music therapy can increase AS ability in language	Music therapy can increase communication ability and skills in older people with dementia	Music may improve communication skills in people with dementia.

Appendix VII. continued

音樂療法可以減輕失智老人壓力	Music therapy can tone down AS stress or pressure	Music therapy can reduce stress in older people with dementia	Music therapy can reduce stress in older people with dementia	*Music may increase stress in people with dementia.*
音樂療法可以促進失智老人的活力及精神	Music therapy can rejuvenate AS	Music therapy can rejuvenate older people with dementia	Music therapy can rejuvenate older people with dementia	Music may help people with dementia feel younger.
音樂療法可做為失智老人有效的照護活動之一	Music therapy can be one of the effective social cares for AS	Music therapy can be an effective care approach for older people with dementia	Music therapy can be an effective care approach for older people with dementia	*Music may be an overall ineffective care tool for people with dementia.*
主管會贊成在單位對失智老人使用音樂療法	Supervisor will agree with Music therapy to AS in the centre / ward	Supervisor will agree with use of Music therapy for older people with dementia in the centre / ward	Supervisor will agree with use of Music therapy for older people with dementia in the centre / ward	My ward manager supports the use of music in people with dementia in the ward.
同事會贊成在單位對失智老人使用音樂療法	Colleagues will agree with Music therapy to AS in the centre / ward	Colleagues will agree with use of Music therapy for older people with dementia in the centre / ward	Colleagues will agree with use of Music therapy for older people with dementia in the centre / ward	My colleagues support the use of music in people with dementia in the ward.
我會希望在單位對失智老人使用音樂療法	I will agree with Music therapy to AS in the centre / ward	I wish to use Music therapy for older people with dementia in the centre / ward	I wish to use Music therapy for older people with dementia in the centre / ward	I wish to use music for people with dementia in the ward.
在單位使用音樂不會干擾到其他病人	Music therapy won't disturb others in the centre / ward	Music therapy won't disturb other patients/residents in the centre / ward	Music therapy won't disturb other patients/residents in the centre / ward	*Music may disturb other patients in the ward*
在單位使用音樂不會干擾我工作的情緒	Music therapy won't affect my emotion at work in the centre / ward	Music therapy won't affect my emotion at work in the centre / ward	Music therapy won't affect my emotion at work in the centre / ward	Music would not affect my emotions at work in the ward.
在單位使用音樂不會干擾我工作的效率	Music therapy won't affect my work performance	Music therapy won't affect my work performance	Music therapy won't affect my work performance	*Music may interfere with my performance at work.*
單位使用音樂對工作人員有正向的效果	Music therapy has positive impact on the staff	Music therapy has positive impact on the staff	Music therapy has positive impact on the staff	Music may have a positive impact on staff.

Appendix VIII.
Maslach Burnout Inventory (Human Services Survey)

MBI-General Survey

Wilmar B. Schaufeli, Michael P. Leiter, Christina Maslach & Susan E. Jackson

The purpose of this survey is to discover how staff members view their job, and their reactions to their work.

Instructions: On the following page are 16 statements of job-related feelings. Please read each statement carefully and decide if you ever feel this way about *your* job. If you have *never* had this feeling, write the number "0" (zero) in the space before the statement. If you have had this feeling, indicate *how often* you feel it by writing the number (from 1 to 6) that best describes how frequently you feel that way. An example is shown below.

Example:

How often:	**0**	**1**	**2**	**3**	**4**	**5**	**6**
	Never	A few times a year or less	Once a month or less	A few times a month	Once a week	A few times a week	Every day

How Often 0-6	**Statement:**
1. _____	I feel depressed at work.

If you never feel depressed at work, you would write the number "0" (zero) under the heading "How Often." If you rarely feel depressed at work (a few times a year or less), you would write the number "1." If your feelings of depression are fairly frequent (a few times a week but not daily), you would write the number "5."

Appendix VIII. continued

MBI-General Survey

How often:	0	1	2	3	4	5	6
	Never	A few times a year or less	Once a month or less	A few times a month	Once a week	A few times a week	Every day

How Often 0-6	Statements:
1. _____	I feel emotionally drained from my work.
2. _____	I feel used up at the end of the workday.
3. _____	I feel tired when I get up in the morning and have to face another day on the job.
4. _____	Working all day is really a strain for me.
5. _____	I can effectively solve the problems that arise in my work.
6. _____	I feel burned out from my work.
7. _____	I feel I am making an effective contribution to what this organization does.
8. _____	I've become less interested in my work since I started this job.
9. _____	I have become less enthusiastic about my work.
10. _____	In my opinion, I am good at my job.
11. _____	I feel exhilarated when I accomplish something at work.
12. _____	I have accomplished many worthwhile things in this job.
13. _____	I just want to do my job and not be bothered.
14. _____	I have become more cynical about whether my work contributes anything.
15. _____	I doubt the significance of my work.
16. _____	At my work, I feel confident that I am effective at getting things done.

(Administrative use only)

EX: _____ cat:_____ **CY:** _____ cat:_____ **PE:** _____ cat:_____

Appendix IX.

The Approaches to Dementia Questionnaire (ADQ)

ADQ

Please indicate to what extent you agree or disagree with each of the following statements:

1. It is important to have a very strict routine when working with dementia sufferers.

Strongly Agree Agree Neither Agree nor Disagree Disagree Strongly Disagree

2. People with dementia are very much like children.

Strongly Agree Agree Neither Agree nor Disagree Disagree Strongly Disagree

3. There is no hope for people with dementia.

Strongly Agree Agree Neither Agree nor Disagree Disagree Strongly Disagree

4. People with dementia are unable to make decisions for themselves.

Strongly Agree Agree Neither Agree nor Disagree Disagree Strongly Disagree

5. It is important for people with dementia to have stimulating and enjoyable activities to occupy their time.

Strongly Agree Agree Neither Agree nor Disagree Disagree Strongly Disagree

6. Dementia sufferers are sick and need to be looked after.

Strongly Agree Agree Neither Agree nor Disagree Disagree Strongly Disagree

7. It is important for people with dementia to be given as much choice as possible in their daily lives.

Strongly Agree Agree Neither Agree nor Disagree Disagree Strongly Disagree

8. Nothing can be done for people with dementia, except for keeping them clean and comfortable.

Strongly Agree Agree Neither Agree nor Disagree Disagree Strongly Disagree

9. People with dementia are more likely to be contented when treated with understanding and reassurance.

Strongly Agree Agree Neither Agree nor Disagree Disagree Strongly Disagree

10. Once dementia develops in a person, it is inevitable that they will go down hill.

Strongly Agree Agree Neither Agree nor Disagree Disagree Strongly Disagree

11. People with dementia need to feel respected, just like anybody else.

Strongly Agree Agree Neither Agree nor Disagree Disagree Strongly Disagree

12. Good dementia care involves caring for a person's psychological needs as well as their physical needs.

Strongly Agree Agree Neither Agree nor Disagree Disagree Strongly Disagree

13. It is important not to become too attached to residents.

Strongly Agree Agree Neither Agree nor Disagree Disagree Strongly Disagree

14. It doesn't matter what you say to people with dementia because they forget it anyway.

Strongly Agree Agree Neither Agree nor Disagree Disagree Strongly Disagree

15. People with dementia often have good reasons for behaving as they do.

Strongly Agree Agree Neither Agree nor Disagree Disagree Strongly Disagree

16. Spending time with people with dementia can be very enjoyable.

Strongly Agree Agree Neither Agree nor Disagree Disagree Strongly Disagree

17. It is important to respond to people with dementia with empathy and understanding.

Strongly Agree Agree Neither Agree nor Disagree Disagree Strongly Disagree

18. There are a lot of things that people with dementia can do.

Strongly Agree Agree Neither Agree nor Disagree Disagree Strongly Disagree

19. People with dementia are just ordinary people who need special understanding to fulfil their needs.

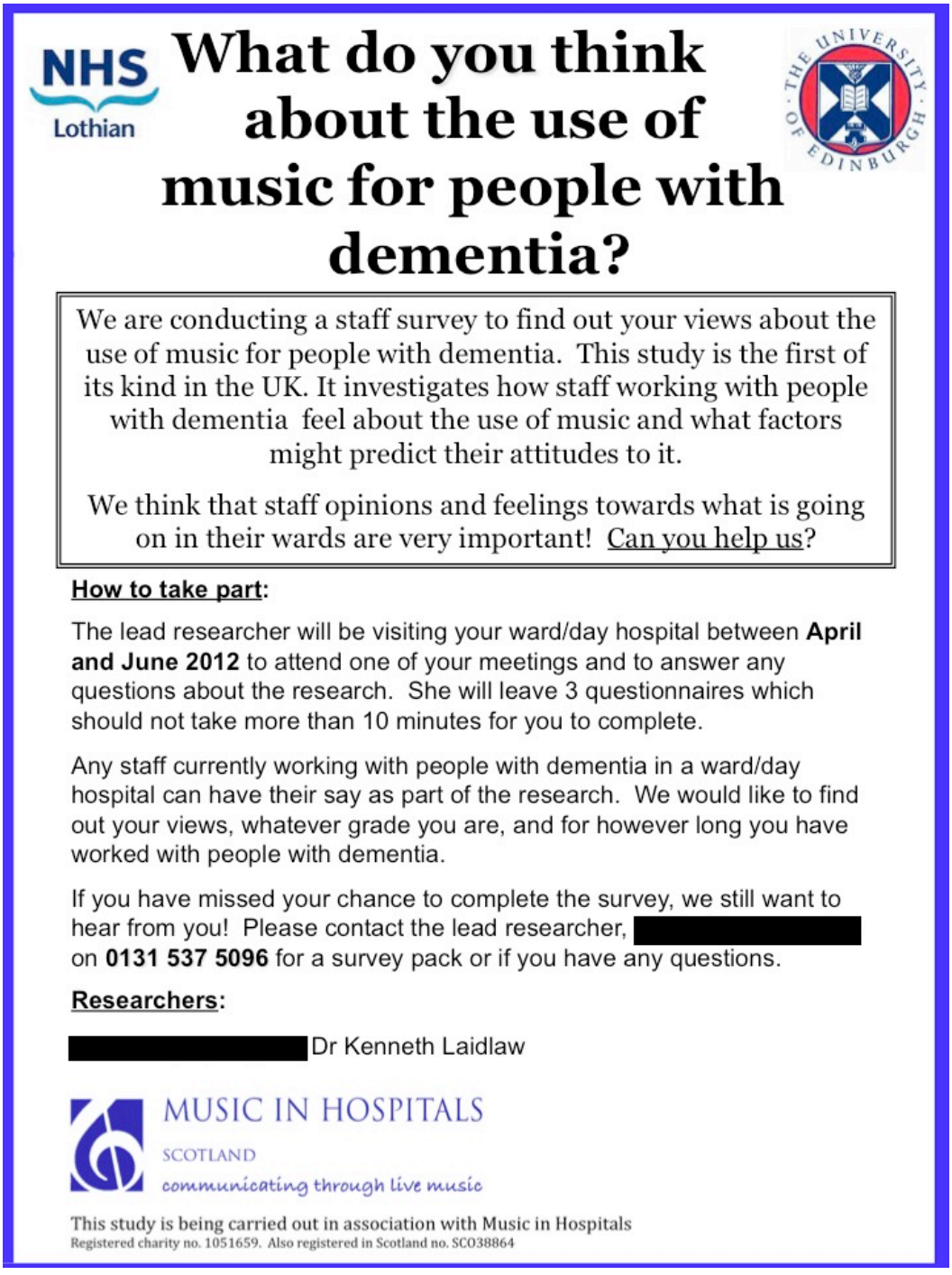
Strongly Agree Agree Neither Agree nor Disagree Disagree Strongly Disagree

TOTAL _____ RP _____

H _____

Appendix X.

Poster advertising the research in wards



NHS Lothian

What do you think about the use of music for people with dementia?

THE UNIVERSITY OF EDINBURGH

We are conducting a staff survey to find out your views about the use of music for people with dementia. This study is the first of its kind in the UK. It investigates how staff working with people with dementia feel about the use of music and what factors might predict their attitudes to it.

We think that staff opinions and feelings towards what is going on in their wards are very important! Can you help us?

How to take part:

The lead researcher will be visiting your ward/day hospital between **April and June 2012** to attend one of your meetings and to answer any questions about the research. She will leave 3 questionnaires which should not take more than 10 minutes for you to complete.

Any staff currently working with people with dementia in a ward/day hospital can have their say as part of the research. We would like to find out your views, whatever grade you are, and for however long you have worked with people with dementia.

If you have missed your chance to complete the survey, we still want to hear from you! Please contact the lead researcher, [redacted] on **0131 537 5096** for a survey pack or if you have any questions.

Researchers:

[redacted] Dr Kenneth Laidlaw

MUSIC IN HOSPITALS
SCOTLAND
communicating through live music

This study is being carried out in association with Music in Hospitals
Registered charity no. 1051659. Also registered in Scotland no. SCO38864

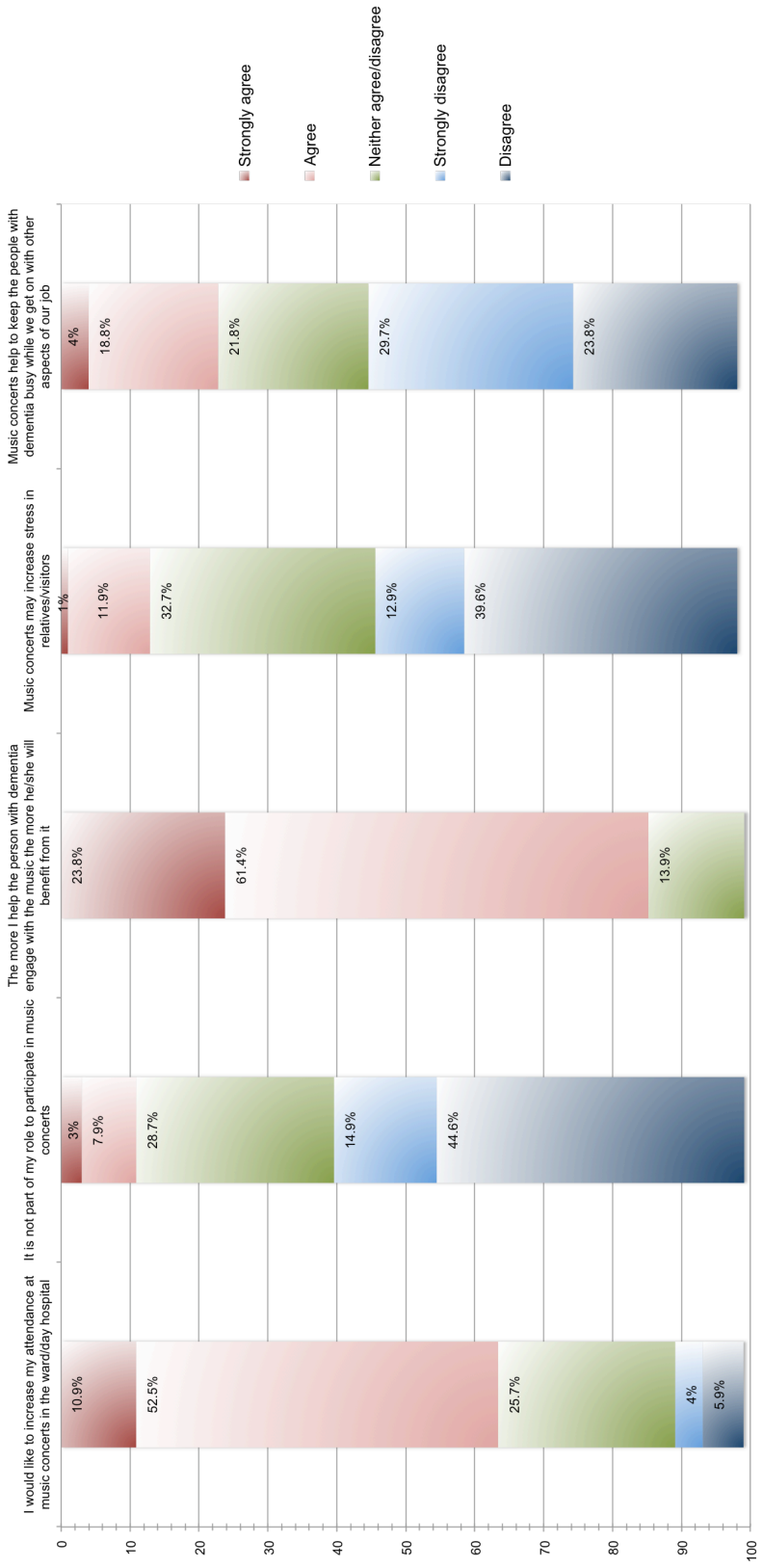
Appendix XI.

Researcher script

- Introduction / Refer to poster
- Thank you to charge nurse/ nurse manager
- Clarify affiliation with Music In Hospitals (not here to evaluate them or on their behalf)
- Background to research;
    - Some of you may have witnessed the effects of music, (music therapies, music concerts) on your patients, either positive or negative. You may take part in it but no one has asked the frontline staff like yourselves what they think about this intervention
    - I am curious to also find out if these attitudes to music are related to other attitudes, such as attitudes to working with people with dementia.
    - The survey takes no more than 10 minutes to complete – don't give answers too much thought.
- Anonymity and confidentiality – explain the process of separating consent forms from questionnaires and who will have access to them and the final report
- I realise that dementia affects every one of your patient differently, that different types of music will be preferred by different people, and that people will be affected by it in different ways. Because I can't ask you to complete this questionnaire individually for each patient (I know you are very busy!) I am seeking your OVERALL opinions on how music may affect dementia.
- Clarify 'recipients' in the MBI refers to people with dementia
- Appreciate you must be busy but please complete after our meeting or on a break soon –the earlier you complete it the more chances I have of this survey not ending up in the recycling!
- This may be the only chance you have to directly express your own opinion and make a difference in the care of the people with dementia.
- The results of the study will be fed back to you via a meeting or a summary poster in the ward – the latest I will give you feedback is March 2013.
- THANK YOU!!

Appendix XII.

The percentages of responses to the statements regarding the role of the respondents in music concerts



Appendix XIII.

Responses to 'free-recall' Question 29: "What would encourage you to attend more music concerts in the ward/day hospital in the future?"

- More concerts on the ward and less paperwork involved in staff nurse role. Increased, often senseless, paperwork is preventing trained staff involvement in activities of all sorts
- I think most staff feel that too much paperwork is now in place and this is what we are audited on. To give the standard of care the clients deserve staff are working on their breaks. The ratio of staff does not increase along with paperwork increases
- If they turn down the volume
- Choice of music appropriate to client
- Having more of them
- Do not need encouragement if on duty almost always attend and enjoy same
- Less paperwork and cleaning duties which have to be undertaken in the ward
- Regular concerts
- I attend all concerts
- Purposeful, appropriate music with an eclectic mix of songs/harmonies which can calm, stimulate and evoke pleasant memories
- That all staff -trained and untrained-were involved
- If more applicable to job role which is of course dictated by needs of individuals on caseload. Mostly community work in people's homes
- More frequent & well advertised (patients being personally invited?)
- Time & if it was directly related to my working role
- If I had enough staff and was able to attend it would be good for me and the patients
- I used to see the flow the patients enjoy themselves, it looks so good to see the joy in their faces
- I don't need to be encouraged as I enjoy it and it is great to see patients enjoying the music as I think they get a lot from this entertainment
- I attend every concert on the day, it is so important to encourage and support these patients. I am a very strong believer how music therapy changes peoples' moods and well being
- Increased staffing levels already I am supportive of music in hospitals, appreciate the benefit but time is a factor when other tasks are required. Management may not appreciate that music is an important therapy for patients
- More staff on duty not always possible to engage with patients short staffed frequently
- Have used music therapy since the 70s since saw positive impact it has on patients-staff & always attend when I can - would like to see it as part of treatment plan
- Asses what type of music is played and whether the clients will enjoy particular genres
- Always attend concerts in the ward whenever it is on
- As long as it was for clients, and staff and clients had input
- More being on offer
- Only if staff and clients liked the music
- The allocation of time for this activity

Appendix XIII continued

- Patients appear to benefit from and enjoy ward concerts but these are not offered frequently
- Music should be appropriate to the patients. I dislike extremely loud music
- Seeing different reactions in people
- Having more staff taking part in the concert with people with dementia
- If they were available
- If there were concerts to attend we have very little budget for anything like this
- One to one care, being able to relate to the patients needs/wants aspirations/comfort
- Encouragement from charge nurse
- Patients getting involved with playing instruments or singing to music
- A good musician
- Patients sing along more or join in concerts
- Increased staff levels to allow for participation in patient activity
- Staff levels- difficult for registered nurses to be spared the time from other clinical duties
- Use of instruments or more interaction
- When you don't feel guilty when your colleagues are busy running the ward while you're sat listening to the music
- 1. if we had more patients able to attend (many are bedbound) 2. If staff had enough time to attend concerts 3. if concerts were taken more seriously as a therapeutic tool
- I would attend when on duty depending what time of day they come, we do get caught up in other duties on the ward sometimes
- More staff levels so that it allows us more time to do concerts
- Visited more often please
- Availability/time
- I like seeing good affect of music on my patients, so I rather encourage them
- Having time and opportunity to!
- Evidence that music is beneficial to people with dementia and other psychiatric illnesses, management agreeing to use the evidence sufficient and allowing music to be part of service
- At the moment there aren't any, I may attend if it is at the end of my working day or during lunch break
- Extra staff on ward
- I attend all music concerts when on duty. Its nice to interact with patients on a different level other than personal care
- If it was more readily available
- Music should always be tailored to the age group/cultural background or preference of the patients eg on occasions we have had operatic type performances that aren’t perceived particularly well
- If on duty I would take part
- I would only attend if on duty or needed to be there for the patients

Appendix XIII continued

- As a staff nurse it would be extremely difficult to attend. Too caught up in management of ward, paperwork, drug rounds etc. would only happen if more trained staff
- I work two long days therefore it is difficult to be on duty when a concert has been arranged
- If the concerts were held on my working days
- I already attend concerts on the ward
- Staffing. More concerts - drop in price of concert and more could be booked
- Support from management and involvement from other staff members

Appendix XIV.

Pearson's correlations of ADQ with age and years of experience

Variable	Years of Experience	ADQ_total
Age of respondent	530**	.058
Years of Experience		.038

Note: ** p < 0.01 (Bonferroni)

Appendix XV.

Pearson's correlations of MBI EE, MBI DP and MBI PA with age and years of experience

Variable	Years of Experience	MBI_EE	MBI_DP	MBI_PA
Age of respondent	.530**	.089	-.056	-.075
Years of Experience		.026	-.042	.031
MBI_EE			.335**	-.126
MBI_DP				-.129

Note: ** p < 0.01 (Bonferroni)

Appendix XVI.

Summary of exploratory analyses

Variable	Skew	Kurt	Kolmogorov-Smirnov test		Shapiro-Wilk test	
	z-score	*z*-score	Statistic	Sig.	Statistic	Sig.
SAM-D	1.983	1.308	.092	.034	.977	.070
ADQ	-1.798	-0.856	.103	.010	.970	.022
MBI EE	4.025	1.004	.127	.000	.923	.000
MBI DP	1.607	1.858	.247	.000	.682	.000
MBI PA	-7.467	11.780	.116	.002	.872	.000

Results from the Breusch-Pagan and Koenker heteroscedasticity tests (Syntax courtesy of Gwilym Pryce and Marta Garcia-Granero)

Run MATRIX procedure:
BP&K TESTS
==========
Regression SS
17.6893

Residual SS
213.9523

Total SS
231.6416

R-squared
.0764

Sample size (N)
101

Number of predictors (P)
4

Breusch-Pagan test for Heteroscedasticity (CHI-SQUARE df=P)
8.845

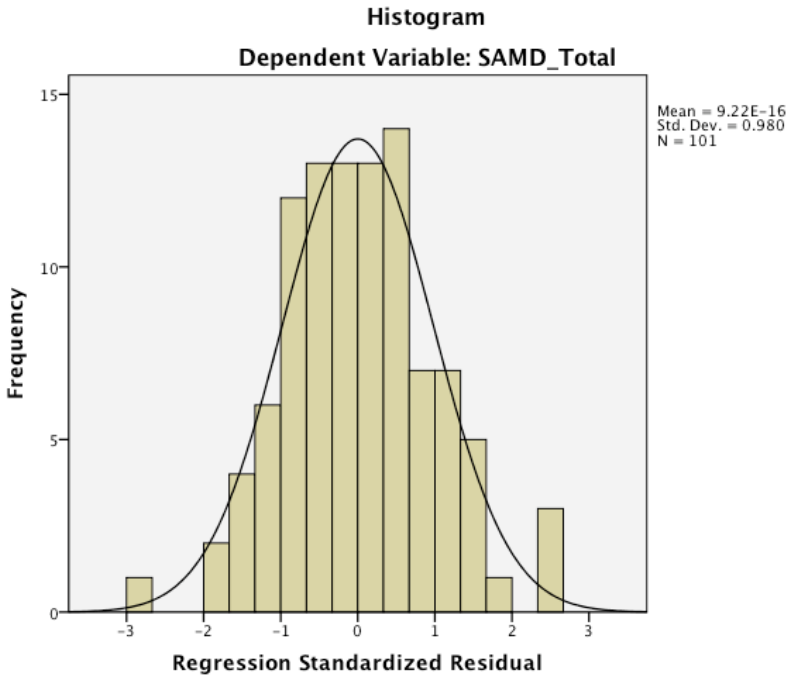
Significance level of Chi-square df=P (H0:homoscedasticity)
.0651

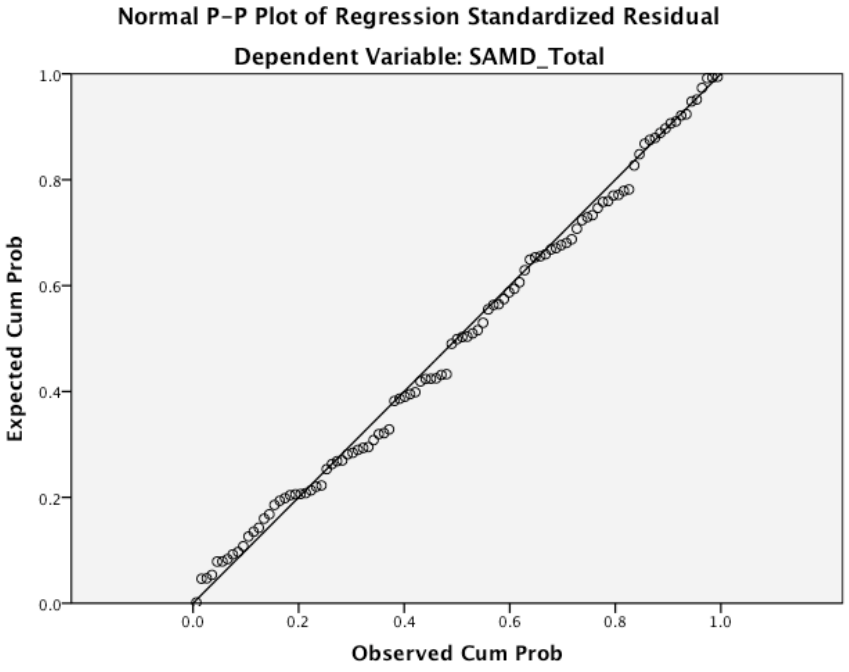
Koenker test for Heteroscedasticity (CHI-SQUARE df=P)
7.713

Significance level of Chi-square df=P (H0:homoscedasticity)
.1027

------ END MATRIX -----

Appendix XVI continued





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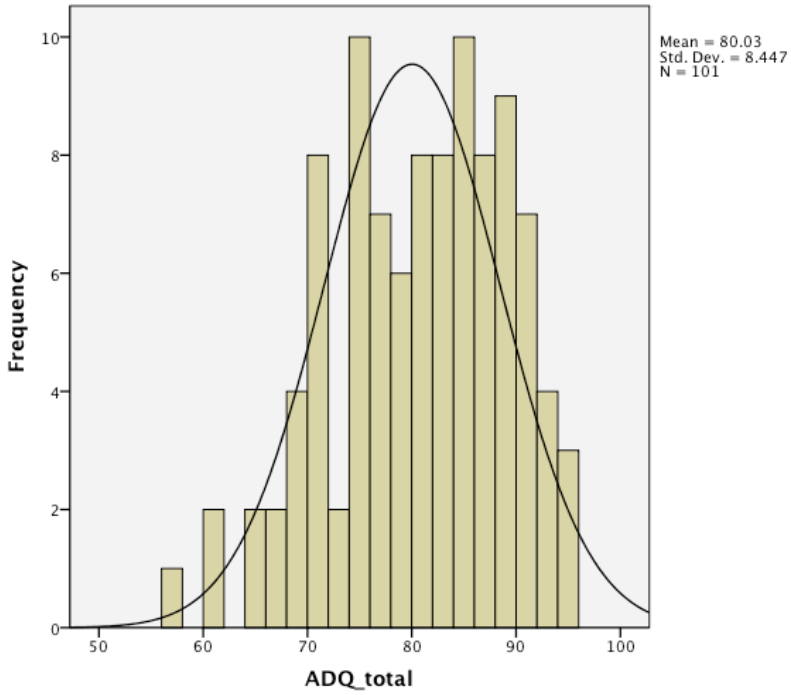

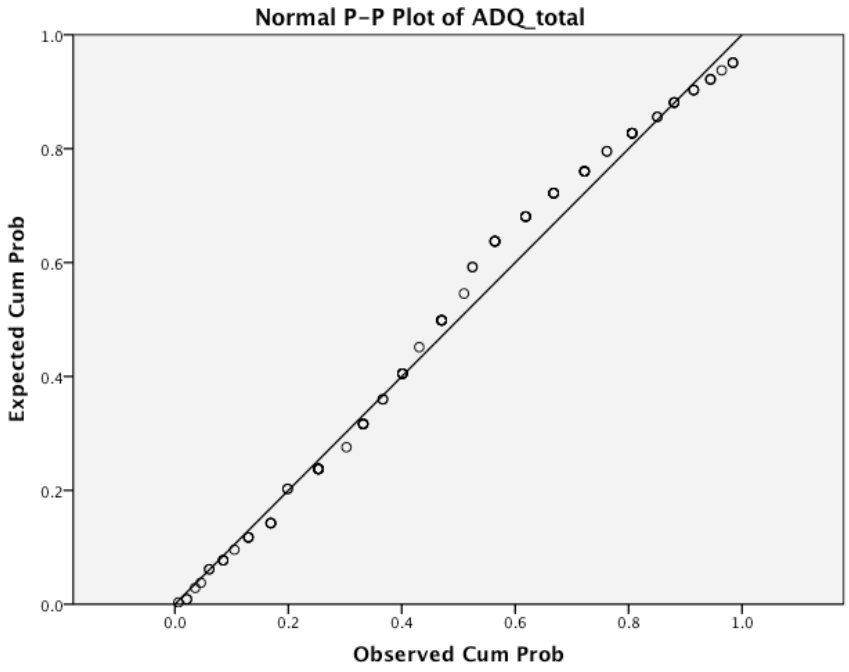

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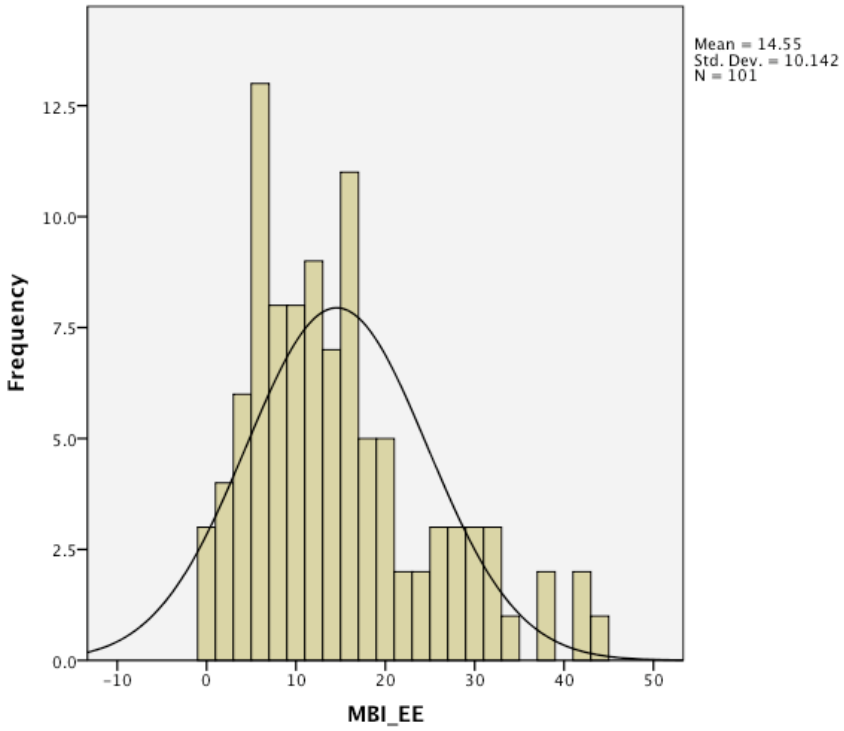
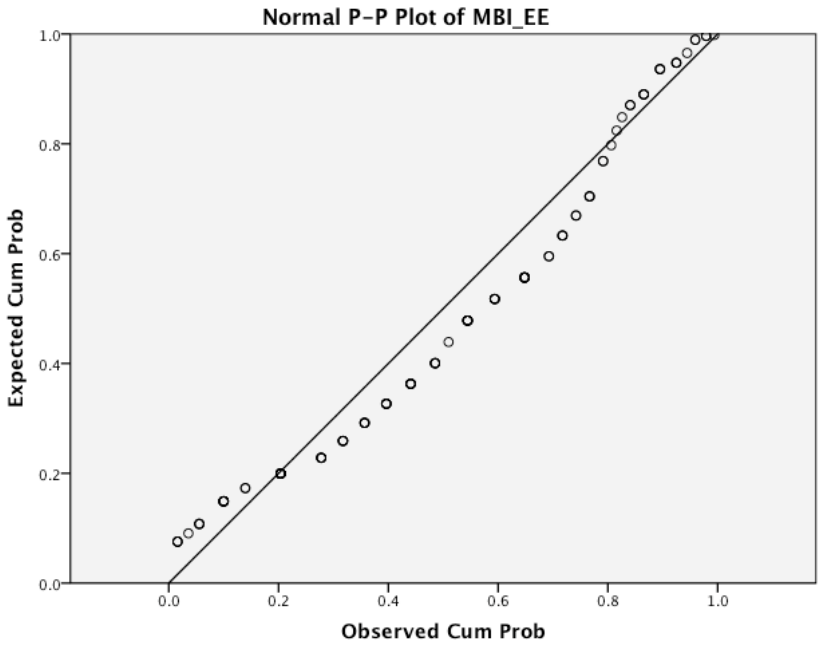
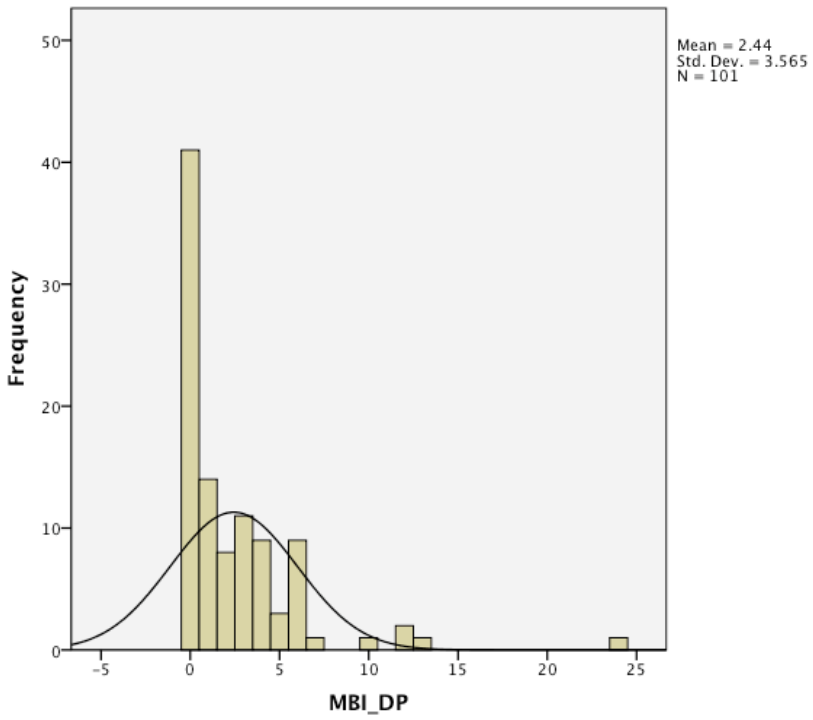
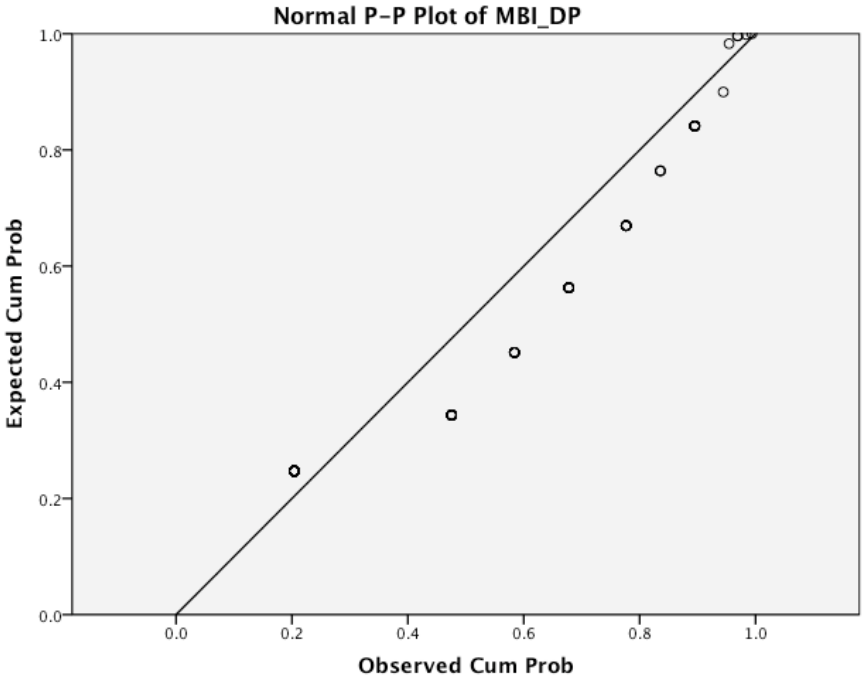




Appendix XVI continued





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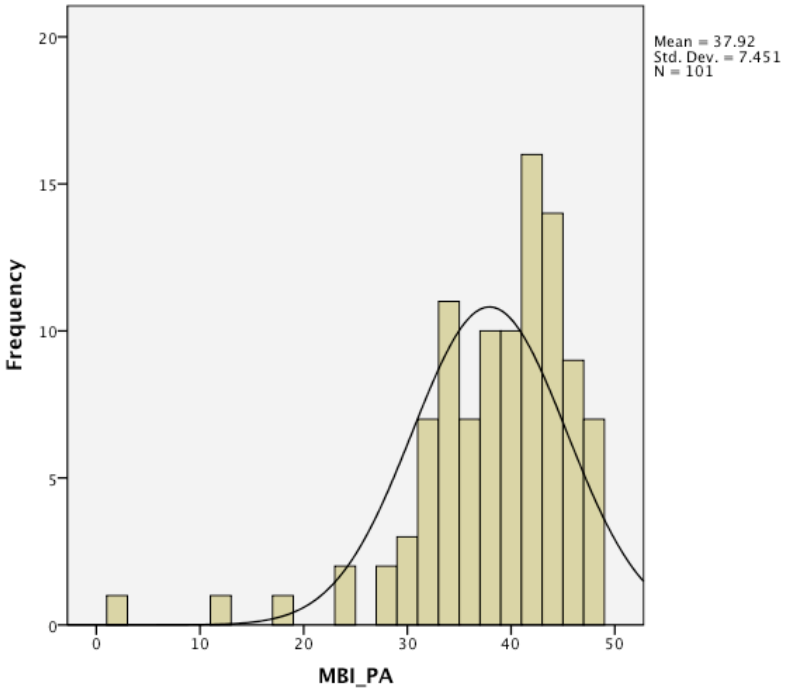
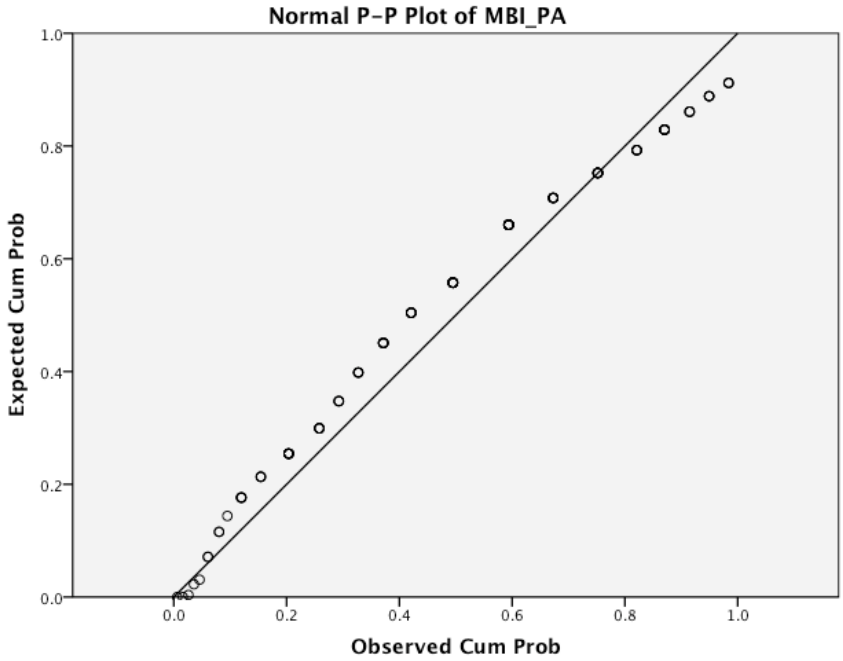




Appendix XVII.

Means, SDs, percentage of distribution across response categories and skewness and kurtosis values for SAM-D items

Item	Item content	M	SD	Distribution					Skew	Kurt
				1	2	3	4	5		
Q1	Music may affect heartbeat, breathing & blood pressure in people with dementia	3.9	0.7	1.0	2.0	22.8	58.4	15.8	-2.911	3.474
Q2	Music may enhance recovery from physical illness in people with dementia	3.8	0.6	0	1.0	31.7	55.4	11.9	0.191	-0.690
Q3	Music may be beneficial in the recovery from physical illness in people with dementia	3.9	0.7	0	1.0	27.7	55.4	15.8	-0.078	-0.782
Q4	Music may be beneficial in the recovery from psychological problems of people with dementia	4.0	0.7	1.0	2.0	11.9	66.3	18.8	-4.597	7.445
Q5	Music may reduce depressive symptoms in people with dementia	4.1	0.6	0	1.0	9.9	65.3	23.8	-1.383	1.893
Q6	Music may reduce pain in people with dementia	3.6	0.8	1.0	5.9	41.6	38.6	12.9	-0.423	0.099
Q7	Music may increase agitated behaviour in people with dementia	2.5	0.9	10.9	52.5	18.8	14.9	3.0	3.021	-0.043
Q8	Music may improve concentration in people with dementia	3.7	0.7	2.0	5.9	22.8	62.4	6.9	-4.77	4.099
Q9	Music may make people with dementia more physically active	4.0	0.7	2.0	1.0	6.9	70.3	19.8	-7.018	13.720
Q10	Music may reduce sleep problems in people with dementia	3.6	0.7	1.0	3.0	43.6	42.6	9.9	-0.477	1.128
Q11	Music may promote social interactions in people with dementia	4.2	0.6	0	2.0	8.9	58.4	30.7	-2.623	2.016
Q12	Music may worsen anxiety in people with dementia	2.8	0.9	5.0	34.7	34.7	22.8	3.0	0.725	-1.200
Q13	Music may improve communication skills in people with dementia	3.9	0.7	1.0	2.0	15.8	61.4	19.8	-3.783	5.029
Q14	Music may increase stress in people with dementia	2.7	0.9	4.0	42.6	31.7	18.8	3.0	1.902	-0.85
Q15	Music may help people with dementia feel younger	3.7	0.8	0	4.0	34.7	44.6	16.8	-0.082	-1.141
Q16	Music may be an overall ineffective care tool for people with dementia	3.4	1.1	5.0	20.8	24.8	29.7	19.8	-0.918	-1.907
Q17	My ward manager supports the use of music in people with dementia in the ward	4.1	0.7	0	0	17.8	48.5	33.7	-0.965	-1.982
Q18	My colleagues support the use of music in people with dementia in the ward	4.2	0.6	0	0	12.9	57.4	29.7	-0.626	-1.148
Q19	I wish to use music for people with dementia in the ward	4.2	0.7	0	1.0	11.9	53.5	33.7	-1.921	0.051
Q20	Music may disturb other patients in the ward	2.8	0.9	6.9	33.7	36.6	17.8	5.0	1.165	-0.650
Q21	Music would not affect my emotions at work in the ward	3.3	1.1	4.0	28.7	18.8	33.7	14.9	-0.410	-2.313
Q22	Music may interfere with my performance at work	3.6	1.0	3.0	15.8	14.9	46.5	19.8	-2.76	-0.673
Q23	Music may have a positive impact on staff	4.1	0.6	0	1.0	10.9	64.4	23.8	-1.367	1.552

Appendix XVIII.

Inter-item correlations matrix for SAM-D items.

	Q1	Q2	Q3	Q4	Q5	Q6	Q7	Q8	Q9	Q10	Q11	Q12	Q13	Q14	Q15	Q16	Q17	Q18	Q19	Q20	Q21	Q22	Q23
Q1	1.00																						
Q2	.39	1.00																					
Q3	.38	.74	1.00																				
Q4	.25	.46	.49	1.00																			
Q5	.39	.57	.55	.57	1.00																		
Q6	.22	.52	.51	.64	.68	1.00																	
Q7	-.02	.07	.08	.25	.07	.10	1.00																
Q8	.13	.38	.33	.39	.36	.47	.05	1.00															
Q9	.27	.41	.46	.54	.46	.45	.19	.36	1.00														
Q10	.39	.31	.39	.46	.42	.50	.23	.37	.31	1.00													
Q11	.23	.20	.27	.47	.44	.34	.15	.37	.43	.57	1.00												
Q12	.04	.14	.14	.22	.05	.10	.73	.13	.16	.17	.12	1.00											
Q13	.19	.43	.39	.57	.51	.46	.10	.44	.51	.39	.63	.12	1.00										
Q14	-.02	.06	.01	.22	.02	.03	.63	.06	.13	.20	.19	.71	.14	1.00									
Q15	.21	.42	.44	.41	.44	.44	.09	.35	.49	.30	.51	.11	.48	-.02	1.00								
Q16	.04	.02	.12	.12	.23	.15	.20	-.03	-.01	.12	.21	.20	.08	.29	.03	1.00							
Q17	.27	.33	.23	.20	.33	.31	.04	.12	.27	.18	.24	.08	.22	.05	.22	.13	1.00						
Q18	.29	.18	.10	.18	.39	.25	.05	.14	.21	.28	.28	.04	.21	.01	.21	.13	.70	1.00					
Q19	.16	.19	.28	.34	.31	.29	.18	.15	.27	.28	.29	.02	.29	.05	.27	.29	.44	.43	1.00				
Q20	.04	.04	.08	-.01	.06	.03	.47	-.01	-.09	.09	-.02	.41	-.11	.43	-.01	.42	-.01	-.03	-.02	1.00			
Q21	-.06	.10	-.03	-.17	-.06	-.06	-.08	.01	.05	-.19	-.05	-.01	-.15	-.05	.02	-.26	.24	.10	-.11	-.09	1.00		
Q22	.01	-.04	-.01	.00	.11	-.07	.22	-.01	.17	.11	.16	.11	-.00	.25	.09	.04	.09	.25	.14	.20	.10	1.00	
Q23	.41	.18	.25	.19	.31	.23	-.02	.04	.17	.40	.34	-.02	.23	.14	.16	.22	.38	.49	.40	.07	-.01	.26	1.00

Appendix XIX.

Structure and pattern matrix, communalities, scree plots and rotated factor loadings for the initial rotated factor solution.

Pattern Matrix

	Component		
	1	2	3
SAMD_4	.786		
SAMD_6	.769		
SAMD_13	.760		
SAMD_3	.752		
SAMD_2	.730		
SADM_8	.718		
SAMD_9	.711		
SAMD_15	.698		
SAMD_5	.695		
SAMD_11	.543		
SAMD_10			
SAMD_18		.900	
SAMD_17		.796	
SAMD_23		.791	
SAMD_19		.602	
SAMD_1			
SAMD_7			.869
SAMD_14			.868
SAMD_12			.865
SAMD_20			.675

Extraction Method: Principal Component Analysis

Rotation Method: Promax with Kaiser Normalization.

Appendix XIX continued

Structure Matrix

	Component		
	1	2	3
SAMD_4	.782		
SAMD_6	.774		
SAMD_5	.769		
SAMD_13	.746		
SAMD_3	.731		
SAMD_2	.715		
SAMD_9	.706		
SAMD_15	.675		
SAMD_11	.640		
SADM_8	.617		
SAMD_10	.615		
SAMD_18		.843	
SAMD_17		.780	
SAMD_23		.762	
SAMD_19		.649	
SAMD_1		.515	
SAMD_7			.875
SAMD_12			.873
SAMD_14			.864
SAMD_20			.653

Extraction Method: Principal Component Analysis.
Rotation Method: Promax with Kaiser Normalization.

Appendix XIX continued

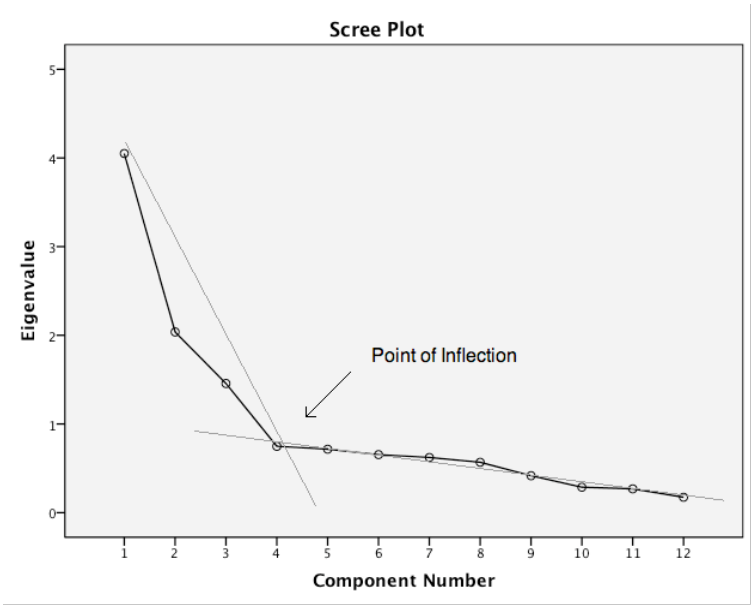
Communalities

	Extraction
SAMD_1	.310
SAMD_2	.515
SAMD_3	.537
SAMD_4	.627
SAMD_5	.628
SAMD_6	.602
SAMD_7	.766
SADM_8	.417
SAMD_9	.499
SAMD_10	.452
SAMD_11	.442
SAMD_12	.769
SAMD_13	.558
SAMD_14	.747
SAMD_15	.461
SAMD_17	.610
SAMD_18	.723
SAMD_19	.431
SAMD_20	.444
SAMD_23	.584

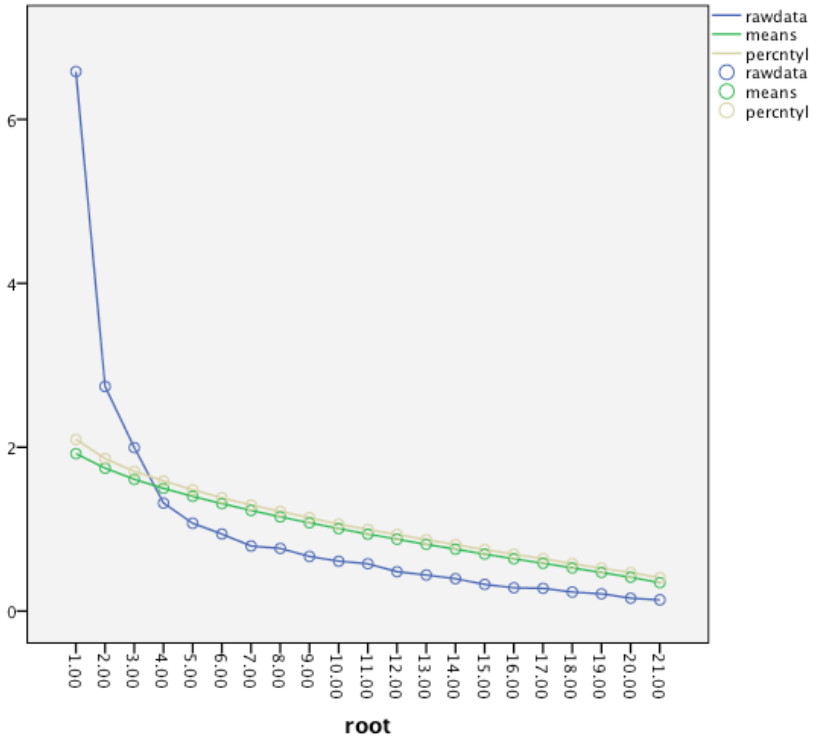
Extraction Method: Principal Component Analysis.

Appendix XIX continued

Cattell Scree Plot



Parallel analysis scree plot



Appendix XIX continued

Item	Description	Factor 1	Factor 2	Factor 3
4	Music may be beneficial in the recovery from psychological problems of people with dementia	.78		
6	Music may reduce pain in people with dementia	.77		
13	Music may improve communication skills in people with dementia.	.75		
3	Music may be beneficial in the recovery from physical illness in people with dementia	.73		
2	Music may enhance recovery from physical illness in people with dementia	.71		
8	Music may improve concentration in people with dementia	.62		
9	Music may make people with dementia more physically active.	.70		
15	Music may help people with dementia feel younger	.67		
5	Music may reduce depressive symptoms in people with dementia	.77		
11	Music may promote social interactions in people with dementia.	.64		
10	Music may reduce sleep problems in people with dementia	.61		
18	My colleagues support the use of music in people with dementia in the ward		.84	
17	My ward manager supports the use of music in people with dementia in the ward.		.78	
23	Music may have a positive impact on staff		.76	
19	I wish to use music for people with dementia in the ward		.65	
1	Music may affect heartbeat, breathing & blood pressure in people with dementia.		.51	
7	Music may increase agitated behaviour in people with dementia			.87
14	Music may increase stress in people with dementia			.86
12	Music may worsen anxiety in people with dementia			.87
20	Music may disturb other patients in the ward			.65
	Eigenvalues	6.20	3.98	2.98
	α	.90	.77	.84

Note: When components are correlated, sums of squared loadings can not be added to obtain a total variance.

Appendix XX.

Structure and pattern matrix, communalities, Cattell scree plot and rotated factor loadings for the final rotated factor solution.

Structure Matrix

	Component		
	1	2	3
SAMD_4	.783		
SAMD_6	.779		
SAMD_5	.770		
SAMD_13	.748		
SAMD_3	.730		
SAMD_2	.714		
SAMD_9	.705		
SAMD_15	.676		
SAMD_11	.641		
SADM_8	.618		
SAMD_10	.612		
SAMD_12		.874	
SAMD_7		.873	
SAMD_14		.862	
SAMD_20		.656	
SAMD_18			.860
SAMD_17			.794
SAMD_23			.741
SAMD_19			.683

Extraction Method: Principal Component Analysis
Rotation Method: Promax with Kaiser Normalization.

Appendix XX continued

Pattern Matrix

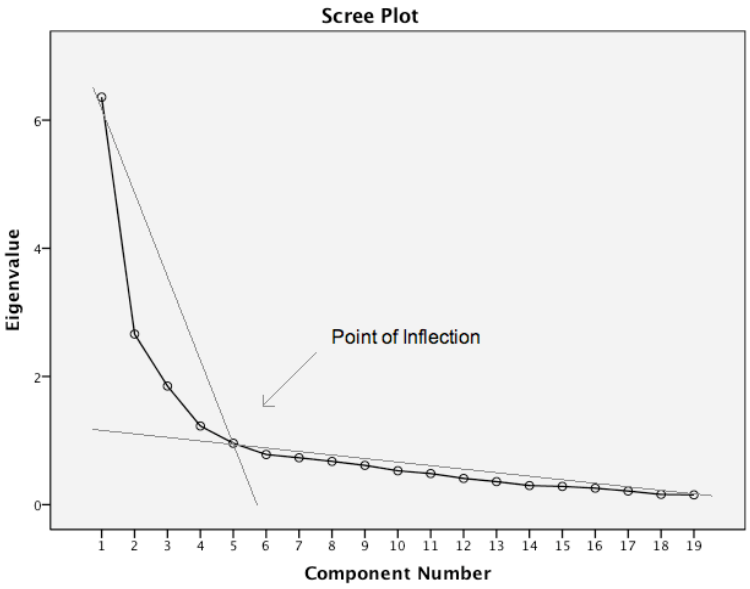
	Component		
	1	2	3
SAMD_4	.782		
SAMD_6	.772		
SAMD_3	.769		
SAMD_13	.750		
SAMD_2	.748		
SAMD_5	.708		
SADM_8	.707		
SAMD_9	.707		
SAMD_15	.694		
SAMD_11	.538		
SAMD_10			
SAMD_7		.868	
SAMD_12		.867	
SAMD_14		.867	
SAMD_20		.679	
SAMD_18			.908
SAMD_17			.802
SAMD_23			.756
SAMD_19			.636

Extraction Method: Principal Component Analysis
Rotation Method: Promax with Kaiser Normalization.

Appendix XX continued

Communalities

	Extraction
SAMD_2	.515
SAMD_3	.538
SAMD_4	.627
SAMD_5	.623
SAMD_6	.610
SAMD_7	.763
SADM_8	.413
SAMD_9	.497
SAMD_10	.440
SAMD_11	.451
SAMD_12	.771
SAMD_13	.560
SAMD_14	.745
SAMD_15	.463
SAMD_17	.631
SAMD_18	.750
SAMD_19	.476
SAMD_20	.447
SAMD_23	.550



Appendix XXI.

Recommendations towards a person-centred approach to the use of music

For the attention of staff and relatives/visitors
who participate in Music in Hospitals concerts in the ward;

Suggestions for helping someone with dementia engage with the music

Music interventions, such as music concerts, are a well-evidenced way of helping someone with dementia engage with their skills and their environment. Most people with dementia will depend on caregiver help to participate and make the most out of music. The more a person with dementia is helped to engage with the music, the more he/she will benefit from its therapeutic effects. Below are some suggestions of how a person-centred attitude can help a person with dementia during music concerts;

- Helping the person to engage in ***verbal communication/eye contact*** with the musician; this may mean changing his/her chair around to face the musician or help orient the person to the music by pointing to the source of music.
- Encouraging the person to ***choose music and make requests*** based on their own musical preferences. This could take place before or during a music concert, by getting information from relatives, staff or the person with dementia as to what music they prefer.
- During a music concert observing, praising and celebrating moments when the person with dementia finds the ***music enjoyable***;
- ***Validating and acknowledging the effects music*** may have on the person with dementia and responding to these effects with compassion, whether these effects can be being sad or joyous.
- Helping the person ***take a lead*** in the interaction with the musician and enabling the person to ***use their remaining abilities***, e.g. being able to sing along;
- Encouraging the person with dementia to be ***spontaneous and express*** themselves by signing along or dancing;
- Helping the person by providing a ***non-threatening reassuring environment*** without posing demands on individual participation in music making. There are no specific aims to be achieved or expectations placed upon the person with dementia or the person who helps the person engage with the music.
- Helping to provide a ***safe space*** for self-revelation and reminiscing throughout and after the concert;

Please note that the following are not instructions, but suggestions of how to help a person with dementia make the most out of an intervention. Lastly, it is hoped that facilitators can enjoy the music as well as the patients.